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## *Advertising And The Maintenance of Prosperity\**

By James H. McGraw, President, McGraw-Hill Publishing Co.

WHEN Mr. Bok established the Harvard Advertising Awards, there was general recognition of their significance. Advertising has come to occupy an important position in the consciousness of the public and of business. Its potentiality—for good or for ill—in the distribution of both industrial and consumer goods, is recognized as tremendous. Such a force must be employed with an abiding sense of responsibility to the public. Such organizations as the International Advertising Association and the Better Business Bureau have been assurances that advertising men recognize this responsibility. But a still more dramatic assurance has been called for, and this Mr. Bok has created in the Harvard Advertising Awards.

When, four years ago, these awards were announced, it was particularly gratifying to me that Mr. Bok, an outstanding editor and exponent of highest publishing standards, should have so clearly sensed the social responsibility involved in both the creation and use and the sale of advertising. Through the several awards, Mr. Bok has dramatized the responsibility of many divisions of advertising for high performance. Moreover, he has defined this as the responsibility of groups, as well as individuals within those groups.

It is, therefore, with a full appreciation of its significance that I accept this medal. The honor has affected me deeply and is one in which not only I, but my family, and my associates in business will take a justifiable pride. But more than that, I accept this not so much as a personal tribute as a recognition of industrial advertising and the high plane it occupies. On behalf of all those interested in raising the standards of industrial and trade advertising, I thank you for this medal with all my heart.

At each stage of the business situation, advertising takes on new significance and new obligations. More and more, advertising becomes essential to the economical movement of goods, from industry to industry, from producer or merchant to consumer. More and more does

advertising guide preference for commodities and services that, interwoven, form the very warp and woof of our civilization.

Hence at these milestones of advertising appraisalment which Mr. Bok has so happily placed in our journey toward a larger national well-being, it is fitting that we re-examine advertising, with particular reference to the current situation.

At present the volume of trade is large. But competition is throttling; and profits, in some quarters, are declining. Some industries are despairing of customers. Has advertising, now so generally used, proven ineffective in maintaining full prosperity? Or have we as yet failed to fully appropriate the power of this great force? Lowered profits and idle capacity are not the concern of the stockholder alone. The public as a whole—employing and employed, as well as investor—suffers a setback when profits are squeezed and wares go a-begging.

Primarily the function of advertising as a business force is to interpret or expand a personality, whether of a product or of a service or of an industry. Products and services vary greatly in personality or distinctiveness. And it has long been recognized that a distinctive product has a decided advantage and security in the market. Excessive competition, with the squeezing out of normal profits, results from a surplus of identical or alternate products, or a surplus of products believed to be alternate.

Now advertising has won its spurs in the economical movement of distinctive goods, with resultant public gain. Is it not the greater field of staples or near-staples to which advertising must now be more widely applied, both in the industrial and consumer fields? And may not we here find a tonic for the price competition malady, thus aiding to restore complete industrial health?

In considering the broader, as well as the more effective, use of advertising, it may well be questioned whether any product, however staple at first sight it may appear, is without elements of distinction. A product is endowed with the qualities of its makers, and no organization is entirely devoid of per-

sonality. The very fact of survival in a competitive market is proof that there is distinctiveness in product or service. There are such individual factors as company reliability; assurance of progressive product improvement through intelligent engineering or painstaking research; ability to assist buyers by prompt deliveries; competence of representatives to advise on use and application of the product and on the condition of the market. There are a hundred respects in which firms differ from each other. All these affect the willingness of the buyer to take one manufacturer's product rather than another's, even though the products appear to be similar.

We must increase our knowledge of how to sense these elements of distinctiveness in this great field of the staple product. Then we shall open up new vistas of advertising effort. Then we shall transfer many products from the miasma of excessive price competition to the high free air of competition in quality and service. Then we shall trade up, rather than down. And business will be the healthier for it.

It is apparent that the very planning of advertising causes a most searching examination of products, to determine the distinctive elements. If, perchance, there be no market distinction, then, at the very least, advertising may guarantee a continuance of quality. The market position of certain brands of flour, bread, soap, cement, brass, industrial belting—the prosperity attending their makers—is eloquent testimony of advertising's effectiveness in the staple field. It has endowed run-of-product with a special character; and, through the guarantee of sustained quality, advertising has made specialties within staples.

True, advertising does not confer full immunity from price considerations and consequent narrow profits and halting markets, but it does shift the competition to bases of quality and use. It puts the battle on the seller's rather than the buyer's ground, but at the same time it proves a boon to the buyer because of insistence on quality. The slogan, "Quality is remembered long after price is forgotten," already accepted as a principle by industrial consum-

ers, suggests distinct social advantages to consumers at large.

Why, then, we may well ask, has not advertising been more completely adopted by business? Why is there today some mistrust of advertising and often lack of will to invoke its power to help correct the current business situation?

Advertising failures have resulted less from lapses in advertising technique than from advertising misapplied. Advertising cannot create qualities. Advertising cannot give market standing to a product where market value does not exist. It is sheer folly to assume that a product will take on compelling qualities if only they be claimed in advertising. Advertising can express, develop and amplify what is already present. It can stimulate the seed of product or service personality to growth and vigor. It cannot create the seed.

How often, through widespread advertising, do we learn that some worthy product, unknown because unheralded, is now to stop out and claim its rightful place in the market. Advertising, presumably, is to supply the vitality, lacking for long slumbering years; advertising, presumably, is to create over night the effective producing organization that the years should have been developing; advertising, presumably, is to create marketing courage where timidity has calmly reigned. Invariably the effort fails. Flashing meteor-like across the sky, the newcomer fades quickly and leaves but blackened night. And often, all unjustly, the finger of accusation is pointed at advertising's failure.

Advertising is a challenge to soundness. It drags an institution into the limelight. It exposes it to examination and to criticism of its claims. Its defects are sure to be exposed.

For business with productions that match the needs of the times, advertising is a beneficent instrument; for those with products that have no rightful market claim, advertising is either corrective or fatal.

And to soundness of product or service, there must be added soundness of marketing method, if advertising is to be an effective instrument of prosperity.

Distribution costs are being subpoenaed before the court of public opinion; and too often advertising

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\*Mr. McGraw has just been awarded the Harvard Advertising Award Gold Medal for distinguished service to advertising. This article gives the text of his address in accepting the award.



# Methods of Starting Squirrel Cage Induction & Synchronous Motors\*

LET us begin by analyzing the situation as it is today to determine whether there is a real need for a change from this long established standard method of starting squirrel cage induction motors and synchronous motors.

Suppose we consider first the machinery to be driven. How has it changed in the past several years? Fundamentally, in many industries, it is actually not much different. There has been a decided trend toward more direct connection. In some lines, motors have been mounted on or even built into the driven machine. Many belts have disappeared although there is still a goodly number. Long center drives have given way in many places to special short center arrangements to economize in floor space. Machinery in many industries is being concentrated in small areas as never before to conserve space and eliminate unnecessary handling of the product undergoing manufacture.

From the driven machinery viewpoint, then, there is evidently little change to influencing the selection of control, unless it is the matter of conserving space.

Suppose we consider the situation from the power supply angle. Central stations have grown enormously in size in the last few years. Distribution systems have likewise grown, permitting the purchase of power in large blocks. Interconnection of systems is becoming common, giving a continuity of service never before obtained, although there seems to be an increase in the number of momentary dips in voltage. For densely populated areas, network systems, furnishing both power and light, are being established and, for the time being, seem to make necessary more stringent starting current limits for those areas, because here voltage dips must not exceed two volts on account of the possibility of obtaining flickering of the lights.

What about changes in motor design? There have been developed lately moderate and high speed synchronous motors suitable for general purpose application, whose starting torques and currents are practically the same as induction motors of equal ratings. Inasmuch as the starting problem from the torque and current standpoint is the same for these synchronous motors as for induction motors, all of our considerations concerning squirrel cage motors will apply equally to the synchronous machines.

Squirrel cage induction motors of four different varieties have been developed. To the ordinary design have been added three motors designed particularly for full voltage starting; namely, (1) the high resistance rotor machine having high starting torque and high slip, particularly applicable to flywheel loads, (2) the normal torque high reactance motor, having low starting current, but otherwise about like the ordinary squirrel cage motor,

By W. C. Falls, Industrial Engineering Department, General Electric Co.

and (3) the high torque high reactance of double squirrel cage motor, also with relatively low starting current. We will consider the characteristics of these different machines later.

Now, do these changes in the power system and in the types of motors at our command make necessary a change in our methods of starting motors?

The standard methods in general use for many years has been the auto-transformer or compensator method, giving reduced voltage, for motors larger than  $7\frac{1}{2}$  h.p., while full voltage starting has been standard for motors  $7\frac{1}{2}$  h.p. and smaller. A failure of this practice to fully meet the needs of all concerned would undoubtedly have led to a general change long ago.

If it had been handicapping electrical development in any way, would electrification in this country have outstripped the countries of Europe to the extent it has?

Has not the fact that, through the use of an auto-transformer, the starting current of a squirrel cage motor can be very appreciably lowered, fostered the use of the simplest and least expensive type of motor in this country—that is, the squirrel cage motor—and thereby contributed largely to the rapid electrification of industry and the tremendous growth of power systems, by building up the power load?

If such is the case, then our enthusiasm to change should not be allowed to sway us to the use of other methods unless these methods proposed have declined and far-reaching advantages. Will they carry forward electrification rapidly or retard it through failure to measure up to all the requirements of real general purpose starting equipment?

Now just what is a compensator or auto-transformer starter and what does it do?

1. It is a self-contained voltage reducing device by which the line current of a motor is reduced (as the square of the voltage) to a lower point than is possible to obtain by any other way, for the same torque.

2. It is practically independent of the design of the motor to which it is applied, and, therefore, either a high or low speed motor of any manufacture can be started by the same auto-transformer starter.

3. The Underwriters and manufacturers have agreed that a general purpose starter, to avoid becoming a fire hazard, should have capacity enough to stand a test of 300 per cent current for 15 seconds out of every 4 minutes for 1 hour without exceeding a temperature set by the A. E. S. C. as a maximum permissible value. Inasmuch as compensators for years have been designed to meet this test, they have gained an enviable reputation of being heavy duty starters. They have handled general applications with remark-

ably few cases of trouble, though frequent and heavy starting duty has often been encountered.

4. An auto-transformer starter affords complete protection to the motor, is self-contained, and, for a current-reducing device, takes the least possible space for the duty to be performed.

It is obviously possible to draw a high current from the line even when a compensator is used if it is improperly handled, but this is also true of any hand device and can be prevented only by properly instructing the operator or going to a magnetic device.

When properly operated, a very low value of current can be obtained for a given starting torque. True enough, there is the magnetizing current of the auto-transformer to be added to that drawn from the line and it is a lagging current. However, designer of auto-transformers keep this at a very low value so that in a properly designed compensator it adds not more than 3 to 10 per cent to the line current, depending on the motor design and the tap used. This obviously is a practically negligible value, compared to the total current at starting.

One point in connection with compensator operation which has been very much over-emphasized is the possibility of a transient current of a high value being obtained on throwing from starting to running, when, in the ordinary compensator, the motor is momentarily disconnected from the line. It is possible to find such a transient if you happen to hit a certain point of the voltage wave upon reconnecting and have an oscillograph to catch it. From a practical point of view, such a current, lasting for only a very few cycles at most, can have no observable effect on the system or motor until large motors are involved, say 200 or 300 h.p. In such larger sizes, the effect may warrant special connections in the starter to avoid disconnecting from the line.

Obviously, if this feature did not affect the small capacity power system of years gone by, it is ridiculous to think of it as possibly harmful with the much larger systems of the present day.

As a device for obtaining the least disturbance, for frequent starting, periods, and general applicability, where squirrel cage motors are suitably applied, the compensator cannot be equalled as a one-step starter.

## Other Methods Proposed.

Why then are other methods of starting being adopted for certain drives and proposed by some for general use?

No doubt there are many contributing causes, but may I offer for your consideration the supposition that such factors as the desire for greater simplicity, the advent of magnetic control, and the development of high reactance motors have

been of no little importance in bringing these other starting methods to the foreground.

The magnetic control business has experienced a most phenomenal growth and is still expanding. Improvements in the design of contractors, relays, canes and other parts have made magnetic devices for all kinds of motors exceedingly attractive, reliable, and compact. They prove extremely desirable since they permit remote control, automatic control, multi-station control, portable master control, emergency stopping, etc. Push-button-operated switches, with full protective features for throwing motors on the line, have likewise sprung into prominence. This year witnessed a remarkable development of smaller switches, of this sort, to meet the demand for switches which can be mounted directly on the driven machine. A 5 h.p. motor starter is now almost small enough to fit into your pocket.

Now, with such small yet dependable magnetic devices available, it has been a natural thing for operating engineers to use them for starting ordinary squirrel cage motors on full voltage, as this combination is the simplest possible, it occupies the smallest space, and prevents abuse by unskilled operators.

## Full Voltage Starting.

Starting on full voltage is not new. The practice started a good many years ago and for some time, as you know, has been standard practice for motors up to  $7\frac{1}{2}$  h.p., as most power companies do not object to the starting current of a  $7\frac{1}{2}$  h.p. motor on full voltage. It has been standard practice in textile mills to start 25 h.p. motors in this way. In central stations 200 and 300 h.p. motors driving essential auxiliaries are frequently tied to the station bus. One prominent automobile manufacturer has for years been starting standard motors up to 75 h.p. on full voltage. Cement plants have used this method for many drives, frequently involving motors as large as 100 h.p. Limitations of this method are not found in the motor design as motors can easily be made to stand this service. In fact, most general purpose motors up to 50 h.p.—1800, and larger sizes at slower speeds, are quite suitable without change. But, rather, the limit is in the KVA, which can be taken from the line and the strength of the connecting link between the motor and its load.

While power-company - starting-current rules have in general not been materially changed in the last 12 to 15 years, and, therefore, users with one or two motors have been forced to retain current-reducing starters, the number of consumers with large connected loads has multiplied rapidly. In the plants of such consumers full voltage starting can be and is practiced with large motors. To this increasing number may be added a large number of plants producing their own power on a large scale. So the practice of full voltage starting of squirrel

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\*A paper presented January 21, 1928, before the Lehigh Valley Section of the A. I. E. E., Bethlehem, Pa.





With many textile mills moving whole plant units closer to raw materials—taking every known means to reduce production costs because of intensifying competition—

Where is the profit in ignoring the *known savings* effected by Utsman Feeler Bobbin cleaners?

Savings in time, labor, money. Elimination of production tie-ups by assuring a continuous supply of perfectly cleaned quills. Forty thousand bobbins cleaned a day with single end Utsman. Eighty thousand with double end Utsman. And no split ends.

These economies are being taken advantage of by hundreds of plants. We will gladly make an estimate of the savings which can be made in *your plant*. Write today for full details.

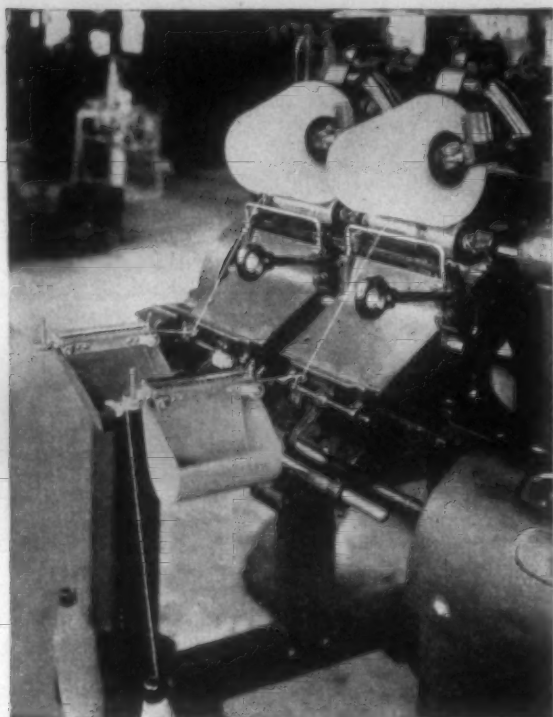
The TERRELL MACHINE CO. Inc.  
Mfys. Jermaco, Utsman, Type K, Etc. Machines  
CHARLOTTE, N.C.

General Supply Co. Danielson, Conn.  
N.Y. and N.E. Representative.



## Has Industry a Soul?

By W. M. McLaurine, Secretary, American Cotton Manufacturers Association.



## A new yarn cleaner to police your winders

SLUBS . . . knots . . . bunches—let them try to wiggle through this improved Eclipse Yarn Cleaner. Let them try to squirm between its small, vibrating blades. Absolutely useless! This little "policeman of the winder" nabs every piece the instant it appears . . . banishes it into the cup-like receptacle that's slung under each cleaner. That's a new feature—this individual waste can. And a row of them can be emptied more quickly, more easily than a trough serving a line of working cleaners . . . Examine the cleaner, itself. You'll find it keeps the same line-up of flexible blades. You'll find it's built stronger . . . that its stationary parts are simpler. And this simplified layout makes possible a reduction in the price of this new Eclipse. . . May we send you quotations and a cleaner for trial on your winder or spooler? Write us.

Eclipse Textile Devices, Inc.

Makers of the Eclipse-Van Ness Random Dyer

Elmira, N. Y.



**R**EFORMS are recurrent and restless social expressions demanding really constructive improvements or they are blatant boastings of egocentric minds who like to have their personal predilections placed in public print.

They are always at work great reform movements silently and powerfully growing like massive oaks. The seed placed in the ground whose mature growth furnishes food for the people, protection for the weak and beauty for the aesthetic. Real reforms work like this.

Banner parades with bands playing and high sounding sophomoric theoretic platforms do not generally accomplish more than a disruption and restlessness.

In the textile industry there have been and are even yet things that are not socially approved. This is true of all industries. There have been some things in its evolution that have not had the approval of either the managers or those connected with the industry. Many of these objectionable features have passed. The position of the industry may be viewed from two points and different conclusions will be reached from each point.

If we stand back in the early days of the industry and see an idle, forgotten, desolate and poverty stricken group of some of the South's best people struggling for economic and social existence, if we see industry and farm alike passing this group by and leaving them in a helpless and hopeless attitude, if we can see the embryonic start of economic safety planted in the seed of the early cotton mills, with their hazardous and perilous advent in the South, if we can see this industry extend its feeble and untried hand out to this group of forgotten people and say come with us and we will fight out an economic and better social living for you, then you can see that the textile industry has fundamentally been a missionary industrial movement.

If the reformer will go back and read industrial and economic history with an unbiased mind, and then study these same phases of industry today, he will find a romance that will make him praise the industry rather than condemn it for any shortcoming it may have.

The struggle up has been like the advancing army against a vigorous foe. Industrially, the Southern mill in the early days has had inexperience, lack of capital and stern competition to meet. It has had its inceptive motive always in the forefront though and not for a little while has it had it submerged into forgetfulness.

A greater industrial South, a greater industrial people, a better economic and social condition for all connected, are some of the fundamental and never forgotten planks of its initial embarkation.

The road up has been long, circuitous, sunny and seamy. Progress never runs smoothly. The ideal never exists materially. Only those

who have played the part know the facts.

When we stop today and review the past and make comparisons, there is no reason to be other than proud of accomplishments. Looking back over forty years, thirty years, twenty years, the growth and evolution has been marvelous and really worth of boasting.

Compare living conditions in the villages today with former living conditions of the mill workers.

Compare economic and social conditions today in the same way. Then there are health, education, moral, religious and social opportunities for expression, and dozens of other comparisons which when truly drawn will make not only the textile leaders vain but the great itself proud to boast of its textile possessions.

The reformers do not worry me other than their pratings are so discordant.

Progress, rapid progress is evident, it proclaims itself, it has not stopped nor will it stop. The momentum is too great, the aims and ideals of its leaders are too great. The cotton mill president thinks far more deeply and constructively about reforms and how they may be effected than the reformer. There is no principle of reform that has ever been enunciated by an outsider that has not been seriously discussed by many mill men. They have even thought of other things that have not even been projected by the reformers. How to do them and when to do them are the questions now under consideration. It would be foolish to plant beans in the winter time and plant wheat in mid-summer. There is a season, a time for everything. There are approximately 300,000 workers in the Southern textile mills, in their lives and philosophies are deeply embedded certain traditions and philosophies that cannot be easily supplanted or uprooted. Not all of this industrial philosophy of the textile industry is made by the managers. This philosophy is made up by the body politic.

A great Southern minister once said to me when we were discussing this question, "I am not so much interested in present conditions as I am your direction. I believe your direction is right and I believe that you are capable of working out your problems and I think you should be let alone."

Common sense indicates that in life there is always growth. There are defects that need curing. No one denies that there are certain factors in the textile industry that seem to need revamping.

The textile managers are not unmindful of these things. They are watching them. They will be changed at the proper time.

Haste makes waste. The Master never hurried. He never mobilized movements for reform. He laid down principles and left it for the hearts of men to act on them and  
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## Of Course This Shouldn't Happen in Your Boiler Room—But Does it?

### U S PRODUCTS

(For the Spinning Room)

*Warp Bobbins,  
Warp Filling Wind Bobbins,  
Filling Bobbins of all kinds,  
A. L. Bobbins or Quills, oiled,  
shellaced;—or enameled in  
our own Enamelling Plant,  
Underclearer and Scavenger  
Rolls,  
Speeder Bobbins and  
Skewers.*

Selling Agents for

**APCO-MOSSBERG CORP.**

All-Steel Loom Beam Heads  
All-Steel Section Beam  
Heads  
All-Steel Adjustable Beam  
Heads

**M**ANY a spinner and carder will smile as this picture recalls to his mind how he got rid of a lot of bobbins that didn't measure up,—then he ordered some more.

Operators can't produce good work on bobbins that run out of true, that are off-size, poorly finished, or otherwise defective, and their natural action when they strike such a bobbin is to heave it in the trash can.

They don't have to destroy many before your cost per usable bobbin has risen far above the price you would have to pay in the first place to get bobbins of guaranteed quality. From this angle alone, it pays to buy good bobbins, not to mention the waste in material and time you avoid.

First cost by no means tells the story. In the long run it always costs less to buy U S guaranteed bobbins. Often the first cost is no higher.

U S bobbins represent a value for the money. We operate six factories continuously on orders for mills who have found this to be a fact.

Write, wire or 'phone your order.



Main Office:  
Providence, R. I.  
Branch Offices:  
Philadelphia, Pa.  
High Point, N. C.  
Atlanta, Ga.

## U S BOBBIN & SHUTTLE CO.

GREENVILLE, S. C.

**BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES**

U S salesmen are specialists on bobbins, spools, and shuttles. Order direct from U S for real helpful and understanding service



## NATIONAL VAT DYES

Carbanthrene Blue G C D

Double Paste

Carbanthrene Black B

Double Paste

Carbanthrene Yellow G

Double Paste

**S**AMPLES and complete technical information will be supplied upon request to any of our branches.

National Aniline & Chemical Co., Inc.  
40 Rector Street, New York, N. Y.

BOSTON CHICAGO PHILADELPHIA  
PROVIDENCE CHARLOTTE SAN FRANCISCO  
MONTREAL TORONTO

## NATIONAL DYES



## Uses of Cotton in Clothing and Household Articles

By Edna L. Clark, Bureau of Home Economics, U. S. Department of Agriculture

If the cotton industry is to grow and prosper, new uses for cotton must be sought and goods which meet the changing needs of the consumer produced. While it is true that large quantities of cotton are sold to be used in the process of producing other commodities, yet in the long run the major demand for cotton goods is created by the ultimate consumer. Manufacturers are aware of this, and are working toward the development of new uses for cotton goods. A listing of the articles in which cotton is used by the consumer is appropriate at this time, as it forms a desirable basis for the development of new uses.

A large part of the consumer-demand for cotton consists of articles of clothing and for the household. The following lists have been compiled to indicate the extent and scope of the use of cotton in such articles. The lists are not exhaustive, but represent the articles which are customarily consumed in the United States today, and which contain an appreciable amount of cotton. A complete list of consumer commodities containing cotton would include, in addition to those listed, articles used primarily in institution, such as maps in schools, and those required in various sports and forms of recreation, such as tennis nets.

The list of uses of cotton in clothing is presented here in three parts: for infants and young children, for women and girls, and for men and boys. The household uses for cotton include those commodities used in the house and in the garden grounds surrounding it, and personal articles not classified under clothing:

### Clothing of Infants and Young Children

Outer Garments  
Aprons  
Blankets  
Blouses  
Baby buntings  
Capes  
Coats  
Coveralls  
Dresses  
Linings to fur pieces  
Linings and interlinings in coats and  
capes  
Mufflers  
Overalls  
Raincoats or capes  
Rompers  
Sacques  
Suits  
Sweaters  
Sweater suits  
Trousers  
Headwear  
Caps  
Hats  
Hat trimmings  
Hoods  
Shawls  
Footwear  
Bedroom slippers  
Bed socks  
Bootees  
Canvas shoes  
Galoshes  
Leggings  
Shoe laces  
Shoe linings  
Stockings  
Undergarments  
Bands  
Bathrobes  
Boomers  
Diapers  
Diaper protectors  
Drawers  
Kimonos  
Nightgowns  
Pajamas  
Petticoats  
Shirts  
Sleeping bags  
Slips  
Underwaists  
Unionsuits  
Accessories  
Bibs  
Garters  
Gloves  
Handkerchiefs  
Mittens  
Ribbons  
Ties

### Clothing for Women and Girls

Outer Clothing  
Aprons  
Blazers  
Blouses  
Capes  
Coats  
Combining jackets  
Coveralls  
Dresses  
Fur neckpiece linings  
Fur muff linings  
Knickers  
Knicker dresses  
Linings and interlinings in coats and  
dresses  
Mackinaws  
Middies  
Mufflers  
Padded jackets  
Raincoats and capes  
Riding habits

Scarfs  
Shampoo jackets  
Shawls  
Skirts  
Sleeveless jackets  
Smocks  
Suits  
Suits for athletic uses  
Sweaters  
Uniforms  
Headwear  
Bathing caps  
Boudoir caps  
Caps  
Ear muffs  
Hats  
Hat bands  
Hat cords  
Hat linings  
Hat ornaments  
Night caps  
Stocking caps  
Undergarments  
Bathrobes  
Brassieres  
Bloomers  
Camisoles  
Chemises  
Combinations  
Corsets  
Drawers  
Garter belts  
Girdles  
Kimonos  
Negligees  
Nightgowns  
Pajamas  
Petticoats  
Sanitary aprons  
Sanitary belts  
Sanitary napkins  
Sanitary step-ins  
Shirts  
Slips  
Step-ins  
Underknickers  
Underwaists  
Unionsuits  
Footwear  
Bathing slippers  
Bedroom slippers  
Bed socks  
Galoshes  
Gymnasium shoes  
Leggings  
Shoe laces  
Shoe linings  
Spats  
Stockings  
Stocking legs to wear under silk in  
winter  
Tennis shoes  
Accessories  
Beltings  
Belts  
Bindings  
Button covers  
Collars  
Cords  
Cuffs  
Fans  
Flowers  
Fringes  
Garters  
Gloves  
Hair bands  
Hair nets  
Hand bags  
Hand bag linings  
Handkerchiefs  
Lingerie braids  
Mittens  
Name tapes  
Pocketbooks

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# E. F. HOUGHTON & CO.

**The ONE SURE WAY to reduce lubricating costs and at the same time obtain BETTER lubrication is to use an oil that has both high film strength and great slipperiness.**

"It can't be done," they used to say.

**B**UT Houghton did it and is doing it every second of every day all over the world.

How?

Very simple.

We found that one oil alone can't do it. That has always been common knowledge. But TWO oils combined—one absorbed in the other—CAN do it very easily. As a result the Houghton Research Staff developed

## Houghton's Absorbed Oils

which consist of "two oils in one"—a film oil and a lubricating oil. Doesn't that sound sensible?

The film oil prevents metal to metal contact. It prevents metallic wear and saves much money in babbitting, machining, and replacement costs.

The lubricating oil furnishes the much needed slipperiness and thereby reduces power costs to the very minimum.

The two oils in one also prevent spilling out onto the floor, onto the machines, onto the product, and reduce evaporation losses. In other words, Houghton's Absorbed Oils STAY PUT. They stay IN THE BEARINGS where they belong.

All of the above statements are easily proved. There is a Houghton Man in your vicinity who will gladly call to go into your lubricating problems with you. He won't obligate you or embarrass you in any way.

If you would rather not have the Houghton Man call just yet, ask for printed proof. Tests have been made on Houghton's Absorbed Oils by absolutely unbiased engineers not on our payroll and the results of those tests have been put into print. Would you like to have copies of such test reports?

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BIRMINGHAM, ALA.  
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HOUGHTON  
LINE

# Exports of American Cotton and The World Cotton Industry

**T**HE steady improvement in the position of the world cotton industry is indicated by the trend of raw cotton exports from the United States during the past five years, exports for each successive year since 1923 having shown an increase over shipments for the preceding 12 months. Exports of raw cotton, including linters, from the United States during the calendar year 1927 amounted to 2,478,000 bales. This was the highest figure since 1912 when shipments totaled 10,694,000 bales and exceeded the 1926 by about 5 per cent—marked gains in the purchases of some countries having been offset partially by losses in sales to other important markets. The principal increases over 1926 recorded in raw-cotton exports in 1927 were as follows: Germany, 528,000 bales; Russia, 213,000; India, 201,000; Japan, 186,000; and China, 70,000. On the other hand, sharp declines were registered in 1927 as compared with 1926 shipments to the following countries: Great Britain, 614,000 bales; Italy, 146,000; and France, 64,000.

## Raw Cotton Exports in 1927 Compared with Those for 1923.

Exports of raw cotton (including linters) during 1927 were about 80 per cent larger than 1923 shipments abroad. The 1923 figure (5,279,000

G. D. Ferrante, Textile Division, U. S. Department of Commerce.

bales), however, was the lowest for any postwar year and fell considerably below the annual average for the five years ended December 31, 1923 (6,116,000 bales), while exports reached a postwar peak in 1927. This fact must be taken into account in the following comparisons of shipments to the various export markets.

The rise in the exports of American cotton to Germany and Japan between 1923 and 1927 is particularly noteworthy. Shipments to the former country increased from 1,012,000 bales in 1923 to 2,611,000 in 1927 and to the latter from 674,000 bales to 1,437,000. In 1927, for the first time in the history of cotton exports, Germany superseded Great Britain as the leading foreign market for American cotton. Inasmuch as about one-third of the American cotton reaching Germany is reexported to Eastern and Central Europe, the larger exports to that country reflect likewise the improvement in the cotton industries in those parts of Europe. The larger shipments to Soviet Russia represent not merely increased takings of American cotton but also direct purchases in the United States. Formerly, much

American cotton was shipped to Russia via Liverpool and Bremen. **Conditions in World Cotton Industry Varied in 1927.**

The situation in the world cotton industry during 1927 was far from uniform. Conditions were favorable in some countries while curtailed operations prevailed in others. The cotton manufacturing industry worked at about full normal capacity or above in the United States, Germany, Belgium, the Netherlands, Poland, Czechoslovakia, Soviet Russia, and Hungary, while mills in Great Britain, France, Italy, Spain, Portugal, Austria, and Japan operated on reduced schedules.

The demand for cotton cloth was good in the United States, Germany, Belgium, the Netherlands, Soviet Russia, Poland, and Czechoslovakia, but only fair in Great Britain, France, Spain, Austria, and Japan, while a poor market prevailed in Portugal and some other countries of minor importance in the world cotton industry.

The situation in the more important countries is briefly analyzed in the following resume:

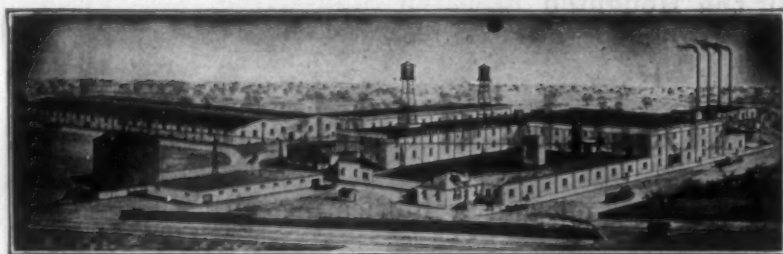
The section of the British cotton industry spinning American cotton

worked below capacity throughout 1927, although conditions were better during the first quarter of the year than in the remaining months. The mills operated at about 75 to 80 per cent of capacity during the first three months and at approximately 65 per cent for the balance of the year. In order to restore this section of the industry to a profitable basis, several proposals to restrict production of yarn made from American cotton were submitted by various spinners' organizations to their members. During April the recommendation of the Cotton Yarn Association that its members suspend production from April 11 to 18, inclusive, was generally observed as was also a subsequent proposal to curtail production of yarns under 42s by 25 per cent. A recommendation by the Federation of Master Cotton Spinners' Associations for a full week's stoppage in addition to the regular vacation holidays, between August 5 and September 10, was unsuccessful. All restrictions imposed during April have now been removed.

The cotton goods market was fair at the beginning of the new year but became quiet during March. The demand for cloth in the domestic market was stimulated some-

(Continued on Page 37)

## VICTOR MILL STARCH — The Weaver's Friend



It boils thin, penetrates the warps and carries the weight into cloth. It means good running work, satisfied help and one hundred per cent production.

We are in a position now to offer prompt shipments.

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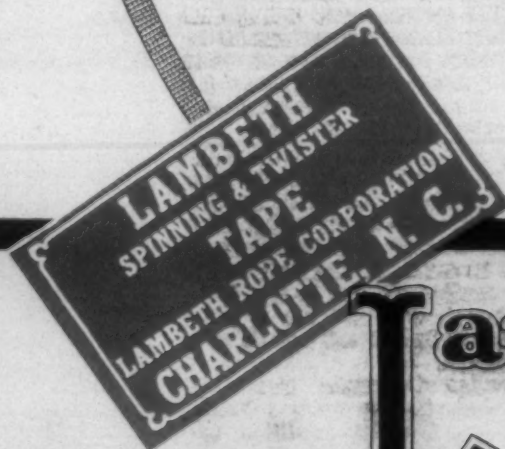
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You can tell the quality of Lambeth Tapes just by their smooth feel and their high lustre. The real test, of course, is to use them.

We suggest that you make this test without delay—as the quickest way to realize the economies possible through standardizing on Lambeth Tapes.

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**Lambeth** *Twister and*  
**SPINNING TAPES**

# The Physical Properties of Rayon

Extracts from Address by A. L. Wykes, before British Association.

THE common methods of producing artificial silk are remarkably like that used by the silkworm, and if the worm beats the machine as far as strength of fiber is concerned, it can be pointed out that each producing nozzle spins as much in a day as a worm does in a year. The method used is simple in principle. A solution of cellulose, such as cotton or wood pulp, dissolved in ammoniacal copper oxide, is forced into a liquid which causes the cellulose to be deposited from the solution in the form of a number of fine filaments, corresponding to the holes in the spinning nozzle. The depositing or coagulating liquid, in the case of the cuprammonium cellulose solution referred to, would be caustic soda. In a word, the artificial silk is chemically the same as the cellulose in the original solution, but has a different physical form. By some such chemical process immensely long threads are obtained, each composed of perhaps 25 continuous filaments, each about 1/1000 in. in diameter, with a very smooth surface, which gives artificial silk the high lustre characteristic of cloth and stockings containing it. This regular smoothness is responsible for much trouble, because many fabric faults, hidden by yarns with irregular lustre value, are very noticeable in the case of artificial silk. This will be referred to later. To the manufacturer of textiles

the new yarn is rather difficult to work, for though he does not always realize it, the physical properties are quite different from those of the old yarns, such as wool, cotton, and silk. In the main the weaver or knitter is only a manipulator of tensions and friction. His whole manufacturing process must be based on the physical properties of the particular yarn he is handling. Methods which give complete success with cotton or wool fail badly when applied to artificial silk because the slight differences are not appreciated.

## Definitions of Terms.

In the textile trade we are not careful of the use to which we put such terms as "elasticity," and so it is as well that we should define exactly what we mean by the few special terms that it is necessary to use. The terms "stretch" and "extension" are taken to mean the same quality of extra length while under tension, or pull, or load; "elongation" is used to indicate the extra length after the tension is removed or permanent extension; and "elasticity" is taken to mean the difference between these two — the amount of extra length recovered expressed as a percentage of the extra length while under tension.

The whole trouble is that we have treated artificial silk as if it were a simple substance obeying straight-line laws; actually it is a complex system of two states of cellulose—one we can call "dispersed" and the other "locked." It is this dual nature that gives the yarn physical properties that sometimes seem hopelessly confusing. Dispersed cellulose stretches much with small increases in tension. It can be stretched 30 per cent before breaking, and although at no degree of extension is it completely elastic, yet it can recover as much as 1 in. in 10 in. after removal of the tension. Under an increasing tension it does not stretch quickly to its final length, but creeps in jerks. It is like water flowing in many surges to a lower level. Locked cellulose has exactly opposite characteristics; it is stiff, fully elastic, with little power to stretch, and with a much greater tensile strength. Changes of tension cause an immediate and complete extension without subsequent creep. Ordinary artificial silk contains both dispersed and locked cellulose in varying proportions, and it is the degree to which the cellulose is locked that determines the physical characteristics of the yarn.

Perhaps the locked cellulose is a regrouping of the molecules in the

form of enclosing chains, like wire netting. Imagine a thread formed like the pull-out tubes of a hand telescope, only, instead of solid tubes, we must substitute coil springs. We start with a telescope half pulled out. As we pull on each end the springs stretch a little until the pull is great enough to overcome the friction between the tubes. From this point, although the spring tubes may in themselves stretch a little, the chief extension comes from the sliding of the tubes on one another, and the extension for each increment of pull will be much greater than before. So it is with artificial silk: up to a point all the tension is absorbed in stretching the locked cellulose, but beyond this point the dispersed cellulose stretches in greater increments until the thread breaks. Up to this yield point the stretch is recovered if the tension is removed, while afterwards only a decreasing proportion is recovered. Now let us return to our telescope, which we will assume has been stretched to three-quarters of its full extent, and has only recovered slightly after we have stopped pulling at its ends. As there is now more of the spring tubes exposed for stretching, the increasing tension will be absorbed in stretching the springs (recoverable extension) to a greater extent than the first time, and the pull will not cause the tubes to slides until the maximum pre-

(Continued on Page 38)

## "Sonoco" Introduces The Velvet Surface Cone

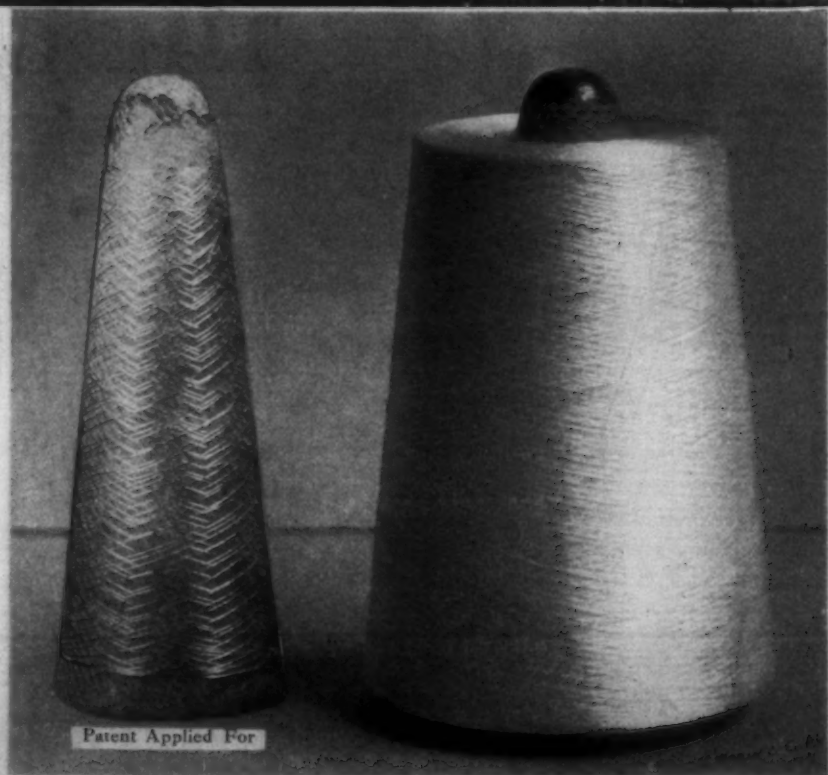
for Silk Yarns  
Artificial Silk Yarns (of all  
kinds) and for fine numbers  
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Artificial Silk  
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Velvet Surface  
Cone

NOTE that the full  
traverse has been re-  
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and distortion of fibers  
eliminated.

thus assuring perfect  
delivery of the yarn.



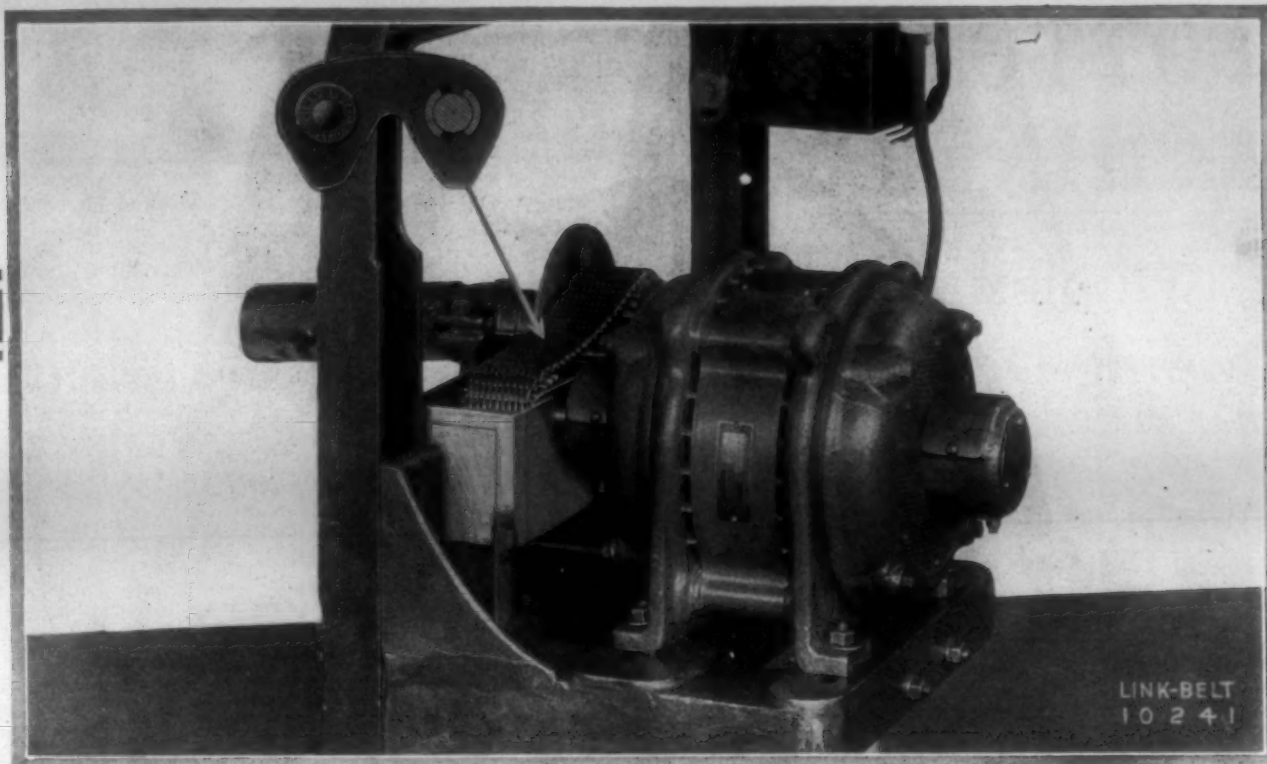
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Automatic Lubricating Casing (Patented) for Spinning Frames, Twisters, etc. Shows cover and intermediate section removed.

## A Continuous Record of Remarkable Service

**W**ITHOUT a single exception, Link-Belt Silent Chain Drives have given perfect satisfaction in every cotton mill where they have been installed.

Testimony to this effect, voluntarily contributed by mill men north and south, covers periods of service as long as fifteen years and includes every type of drive.

Such an unbroken chain of perfect service records could only have been forged with the links of Efficiency, Economy, Increased Production, Better Quality of Output, Freedom from Shutdown, and Experienced Engineers;—links that have proved equal to every demand through more than 20 years.

Within a short radius of your own mill are Link-Belt installations which will furnish you first hand proof of the advantages of this drive. Among these installations are those at the Virginia Cotton Mills, Swepsonville, N. C., The Pacolet Mfg. Co., Pacolet, S. C., and New Holland, Ga., Gainesville Cotton Mills, Gainesville, Ga., the Easley Cotton Mills, S. C., the Brandon Mills, Greenville, S. C., American Spinning Co., Greenville, S. C., Standard-Coosa-Thatcher Co., Chattanooga, Tenn., Avondale Mills, Birmingham, Ala.

Detailed reports by the superintendents of these and other southern mills will be sent on request, without obligation.

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## Duplex Carding Device (HARDMAN'S PATENT)

Can Be Applied to Any Make of Revolving  
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The object of this appliance is to remove motes, leaf, short fibres and foreign substances from the cotton before it reaches the Cylinder and Flat Clothing.

The removal of these foreign substances from the cotton before it reaches the Cylinder and Flats increases the life of the Card Clothing.

The Cylinder, Doffer and Flat strips taken from a Card which has this Duplex Device applied can be put back into the regular mixing.

This Device has no high speed parts to wear, it is simple in construction and operation, and consequently requires very little attention.

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## The Trend of American Industry

THE following article appeared in Black and White, published by E. F. Houghton & Co.:

The one question which is uppermost in the minds of those engaged in American industry is: "What is the trend of that industry? Where is it going? Where is it headed for? What is its future?"

It is true that there has been no scarcity of opinions on this subject, but for the most part they have come from statistical bureaus which base their opinions upon the "cycle" theory, which theory is ridiculously unreliable; from publishers who usually know so much about all subjects that they are authorities on none; from bankers, who have only the financial slant on the subject, and rarely from those who are engaged in industry itself.

The aim of this contribution will be to try to give a compromise opinion of some of the industrial leaders on this subject.

We are told by the editor of that most able publication, Nation's Business, that the number of our factories grows less. That is, the number of shops producing more than \$5,000 in value each year, grows less. From 1923 to 1925 there was a loss of 4.2 per cent in number of factories and a loss of 4.4 per cent in the number of workers and a loss of 2.5 per cent in wages, showing that the loss in factories is not compensated for by the larger industries taking over the smaller with the workers formerly employed by the latter.

In spite of these conditions the value of the products advanced. In 1925 it was 4.1 per cent greater than in 1923 and 1.6 per cent above 1919.

But it is significant that the horse power increased 22 per cent in six years and in two years 8 per cent.

If we plead incompetence to analyze these figures, which are authentic government census figures, it is not an acknowledgment that we are prepared to accept as authentic the analyses made by some who claim to be competent.

We, who are engaged in industry, know that production is now generally upon a larger volume in each manufacturing unit; that improvements in machinery have lessened the amount of labor to units of production and that the smaller shop or mill is having more and more difficulty in competing with the larger and more modern plants. This we know, not from learned authorities, but from common sense observation and knowledge of our business; just the same as one knows when one has the toothache without the necessity of consulting one well versed and learned in the practice of surgery.

If these figures confirm our common sense opinions, all very well and good, for it will make those opinions all the more stable and valuable by increasing the confidence in them. But we come to our opinions not by the figures but by common sense knowledge.

In our opinion, the future of American industry will depend very largely upon whether or not those who are experienced and proven

successes in directing industry are permitted to direct American industry, or whether its direction is to be turned over to government commissions, chambers of commerce, bankers and those who have never faced an industrial pay roll.

If someone were to delegate to us the authority of directing the future of American industry, one of the first acts on our part would be that of elimination. We would eliminate the hot air artist who speaks at public meetings, banquets and the like and who is usually a man with the capacity of a clerk, drawing a fat salary, who is well supplied with cheek and vocabulary and usually is a student in the art of flattery. This chap tells captains of industry who are assembled to hear him, how they can take the trade of the world from all other nations, because at the present time America is in the strongest commercial position as well as the wealthiest nation on earth.

He will loudly proclaim against the repudiation of the national debt by foreign debtor nations, but he does not even blush when he advises American industry to kick those debtor nations when they are down and steal their commerce.

With a conception about as thick as a piece of tissue paper these alleged orators predict that the United States can go ahead and have a private prosperity all to itself. The fact that this sort of thing has been tried and failed repeatedly makes no difference with this sort of chap, because he is the chief optimist of the optimistic club, besides secretary of the chamber of commerce, and facts of past history don't worry him. He proposes to make his audience feel good; he proposes to make himself liked, so that he can continue to hold down his job and perhaps obtain a friendly consideration for an advance in salary at an early date.

That is the sort of chap we want to eliminate right away, because he knows nothing and tells all he knows every time he speaks.

The United States will never get down to permanent prosperity, or what we are accustomed to call "normalcy" until there is international prosperity.

The United States is therefore interested in the industrial revival of Great Britain and other European countries from a purely selfish point of view, irrespective of the question of international debt. Naturally one cannot collect a debt if one takes from the debtor the wherewith to pay.

What American industry need most is to come to a realization that the war boom was abnormal, unhealthy and injurious and that we are not only not going to return a war boom standard, but we do want to. Nor do we want any booms of any kind.

Let us strengthen as far as possible our natural basic position. Let us not neglect our home market looking for foreign markets and us remember at all times that a protective tariff is essential.

(Continued on Page 41)



# Production Economies

by the use of Standardized Products



IN the face of hair-raising competition, the Mill man's problem is to produce **better** products, at the lowest possible **cost**.

Modern efficiency demands the use of strictly standardized materials, at every stage of production.



*Ample  
Stocks for  
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# Practical Discussions By Practical Men

## Yarn Factor

Editor:

In connection with yarn numbers of different sizes and their breaking strength what is meant by the factor of same, and how is the factor arrived at and what is the use of the factors? No. 1.

## Electric Stop Motion Rolls.

Editor:

On drawing frames, why are the rolls which are used in connection with the electric stop-motion, made with a hub smaller on one side and larger on the other side? I have reference to the rolls which rest on the fluted roll at the back of the frame, and under which two sliver pass under each roll. When one sliver breaks the roll tips on that side, and when it comes into contact with the steel roll it closes the electric circuit, and this stops the frame. But I am puzzled about why each roll has one large and one small hub or bearing. Curious.

## Movable Threadboards.

Editor:

Would there be any advantage in having movable thread-boards? That is, when the ring rail rises to the upper part of the traverse, it seems as though it would be much better to have the thread boards rise with the ring rail on spinning frames. Can any one inform us if they are using movable threadboards, and what are the advantages. Progress.

## Answer to Carder.

Editor:

In answer to Carder's question, in handling waste short stock its usually very dry, and owing to having been worked so much, most all of the curl and elasticity have been taken out.

I think Carder would find by oiling his cotton in pickers, using about 2 per cent oil would help.

There is also a system known as soaping being used to good advantage by some waste mills. This little attachment is put out by one of the leading machine builders.

It may be well for the carder to also try setting the mote knives at a different angle as sometimes this will help keep cotton from falling through bars.

Ohio Valley.

## Answer to Ala.

Editor:

I see in your Discussion page that Ala. wants to know how to make a nice line of narrow goods for napping purposes. While there are few men that would make these goods the same in every particular, I feel that my experience might be of some value to him. If he will kind-

*The Practical Discussion Department of the Southern Textile Bulletin is open to all readers whether they are interested in seeking information on technical questions or are willing to help "the other fellow" who has experienced trouble in some phase of his work.*

*The questions and answers are from practical men and have often proved extremely valuable in giving help when it was urgently needed.*

*The interchange of ideas between superintendents and overseers develops a great deal of worth while information that results in much practical benefit to the men who are concerned with similar problems.*

*You are invited to make free use of this department and to join in discussing various problems that are mentioned from week to week. Do not hesitate because you do not feel that you are an experienced writer. We will take care of that part of it.—Editor.*

ly fill in the warp and filling ends per inch it will be a pleasure to do so.

27"—x—5 yards to the pound

27"—x4½ yards to the pound

24½"—x—5 yards to the pound.

Baw.

## Answer to M. L. W.

Editor:

What is meant by "Cone Warping," is an interesting question asked by "M. L. W." May I be permitted to explain this to him through your paper?

"Cone warping" belongs to that branch of textiles known as irregular or special warping. For example, in the weaving of hammocks complete with a fashioned or full formed volume, it is necessary to have either a composite wound warp with the yarn wound coned-shape on each side of the warp, or else have two separate cones wound to be placed on each side of the warp. The big end of the cone let the ends out faster toward the selvages, and as they are woven faster on each side, the take-up roll is also coned-shaped so as to wind the valance of the hammock as woven unevenly or faster than the regular width or body of the warp.

Old Weaver.

## Answer to "Ala."

Editor:

"Ala." has asked for information regarding the best combination way of making goods 27 inches wide to weigh 5 yards per pound and 27 inches wide, 4 yards per pound. Also goods 24½ inches wide and 5 yards per pound. I would advise him to proceed as follows: The 27-inch goods should be made 30 inches wide as the cloth comes from the loom. Use reeds of 18½ dent per inch. Use 24s warp yarn and 1124 ends for the warp. 24 ends of the 1124 to be 24/2 ply, 12 on a side for a good strong selvage. Use 9s filling to make the 5 yard goods, with 30 picks per inch. Use the same construction in every particular for the 4-yard goods, but change the filling to No. 10½ and 40 picks per inch.

Now to make the 24½-inch 5-yard goods: simply change the reed to 21 dents per inch. This will make

the cloth come off the looms 27 inches wide. Put in 40 picks of 10½s filling, same as done for the 27-inch 4½ yards per pound goods. The constructions above given are the simplest and most interchangeable, and will allow amply for shrinkage in width, and also in weight loss on account of napping and felting.

Trusting this may direct "Ala." aright. Construction.

## Answer to Warper.

Editor:

How to remedy the uneven lengths of balled chain warping as asked by Warper. This can be remedied by placing an additional measuring clock at the wheel where the chain passes around from the warper, and to be returned to the same warper to be balled all at one process. This clock should be operated by this wheel. It should measure the chain by yards. This will be a check on the warp measuring device placed on all warpers. Where this has been done among mills, the great wasteful evil of having uneven lengths of balled chains has been overcome.

Expert.

## January Spindle Activity

Washington, D. C.—Department of Commerce announces that, according to preliminary census figures, 36,349,130 cotton spinning spindles were in place in the United States January 31, of which 31,697,876 were operated at some time during the month, compared with 31,715,388 for December, 32,269,478 for November, 32,497,504 for October, 32,343,454 for September, 32,239,246 for August and 32,635,706 for January, 1927.

The aggregate number of active spindles hours reported for the month was 8,259,455,529. During January the normal time of operations was 25½ days (allowance being made for the observance of New Year's Day in some localities) compared with 26 for December, 25½ for November, 25¼ for October, 25½ for September and 27 for August. Based on an activity of 8.78 hours per day, the average number of spindles operated during January was 36,890,685, or at 101.5 per cent capacity on a single shift basis.

This percentage compares with 94.3 for December, 107.2 for November, 105.3 for October, 107 for September, 103.5 for August and 102 for January, 1927. The average number of active spindle hours per spindle in place for the month was 227.

## Prisoner Invents Stop Motion

Experience gained in the duck mill at the Atlanta Federal penitentiary enabled Jeg Harrison, convicted mail robber now on parole, to invent an automatic stop device for cotton looms which is now being tested in the Callaway Mills at LaGrange, Ga.

If the patented device is successful, and it has been up to the present, it will be installed throughout the Callaway Mills and probably in all other cotton mills.

The Harrison invention is a device which automatically stops the loom in case of broken yarn or other accident without jarring or damaging the machinery, according to textile experts.

Looms are so fitted that they stop when the yarn breaks, but the halt is so sudden, without the Harrison device, that it injures the machinery. The ex-prisoner's invention will mean a substantial saving and greatly increase efficiency in cotton mills if it lives up to its early tests, mill officials declare.

## Industries Utilize 12% Of Soap Production

The use of soap for washing, bathing and other cleanliness purposes in the home is, of course, familiar. It is perhaps not so generally known that more than one-tenth of the soap production of the United States is used in other industries. According to T. E. Waters, head of the industrial soap department of the Procter and Gamble Company, 300,000,000 pounds of soap are utilized yearly by the industries of the United States, much of this for purposes other than cleaning. This represents 12 per cent of the entire soap consumption.

## Textile Field Biggest Individual User.

"Soap," said Mr. Waters, "entered the manufacture of over thirty industries, among them textiles, rubber tires, wire cartridges, cordage, playing cards, silver polishes and shoe polishes. The textile field is the biggest individual user of industrial soap. It consumes annually about 100,000,000 pounds, using approximately thirty pounds of soap for every 100 pounds of silk produced. The soap is used principally in the 'degumming' process, where the gum from the silkworm is separated from the raw silk and also as a mordant to set the colors in the dyeing process. Woolen mills use hundreds of tons of soap for scouring raw wool and for 'fulling' or finishing.

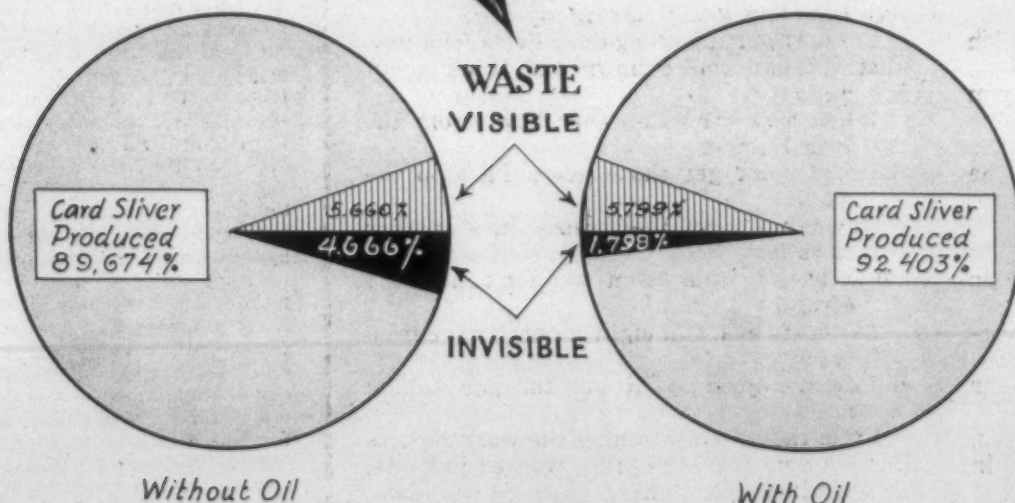




*Facts About*

# Invisible Losses.

(As determined in a representative cotton mill)



This mill manufactures, from 1' Staple Low Midlands cotton, yarns which they subsequently weave into piece goods furnished to their own account.

These figures were obtained by carrying out a special test to determine the exact advantages to them in the "Breton Minerol Process". The possibilities of other mills duplicating these results depend upon the type of cotton used and the conditions existing in each individual mill.

Where records have been carefully kept and tabulated, these facts are corroborated.

At the same time, working conditions under which the operatives work are materially improved by the positive elimination of fly and lint.

## BORNE SCRYMSEY COMPANY

17 BATTERY PLACE, NEW YORK

## The Victory of a H— Bound Master Mechanic

(Written by a Well Known Master Mechanic and Dedicated to all who Suffer with Him)

A. T. Willing (the name is fictitious),  
Was a master mechanic not at all supersti-  
tious,  
But a dream that he had is direct intimation,  
Of his faith in the doctrine of predestina-  
tion.  
Now this A. T. Willing, please bear in mind,  
Was a first class Mechanic, who like all his  
kind,  
Had trials and troubles too many to state,  
And with this introduction his dream I'll  
relate.

A spirit appeared at his bedside one night,  
Clothed in a garment of pure spotless  
white.  
And thus addressed Willing: "To me has  
been given,  
Command from the Recording Angel in  
heaven  
To ascertain why your name should appear,  
On the great Book of Life—the reason's  
not clear.  
The profanity record has been kept for ages,  
But none equal to yours has appeared on  
its pages.  
Therefore, 'tis decided, unless you can show,  
Just cause for defense, we'll send you be-  
low,  
Where the fire always burns and those who  
repent not,  
Forever and ever are kept boiling hot."

On hearing the message, poor Willing tried  
to smile,  
And invited the spirit to tarry a while.  
"If I fail," he said, to make defense in full  
measure,  
I'll receive my sentence with the greatest  
of pleasure.  
Please stay here tomorrow and then go with  
me,  
And report to headquarters whatever you  
see."  
The spirit agreed, I am happy to say,  
And took notes of what happened the  
following day.

And here are extracts I give as example,  
Of the bunch that the spirit took away as  
a sample.  
First a conceited young clerk, with express-  
ion santanic,  
Brought a bundle of letters to the master  
mechanic,  
Please note that the superintendent inquires,  
The cause of your using so much coal in  
your fires.  
Please let me know what excuse you can  
make.  
For having so many machine parts to  
break.  
The cost in dollars per frame last year was  
seven.  
We find this year it has gone up to eleven.  
You must take up the matter and ascertain  
why,  
We used so much oil in the month of July,

You are surely aware that a gallon to use,  
In ten hours running is simply abuse.  
I believe it would be wise, at least we might  
try it,  
To give the oiler a feather with which to  
apply it.

The president will be here before long  
And what he says will sound like a sweet  
song,  
With a note from the spinner a boy came  
tearing,  
Send a man up quick we've burned out a  
bearing.  
Bill stop your lathe and tackle this job,  
We must try to pay Paul if Pete we rob.  
A fireman appeared just then at the door.  
We have a bad leak in Boiler Four.  
Next comes the Carder with a loud yell,  
I have two pickers all broken to h—l.

Here comes the dyer all swelled like a toad  
You'd think from his looks he would surely  
explode  
And asked aloud in the name of the evil one  
Why ain't work on dye pumps been done  
I sent down some chains most an hour ago  
It seems to me some mechanics are slow.  
A note from twister room is laid on the desk,  
Hurry that welding I have two frames at  
rest.  
Where in h— is your humidifier man  
Send him around as soon as you can,  
Some of the heads are working very well,  
While the rest are wetting down like h—

Bill comes back from the bearing repair,  
With a frown on his face that don't lessen  
your care.  
Say Boss how about raising my pay,  
I'm only getting 40 against Ben's 50 a day.  
Just get him cooled down and think about  
dinner,  
When here comes another howl from the  
Boss Spinner.  
Say if I don't get those gears I'll stop the  
work.  
If you can't get them ready hire another  
clerk.  
Oh go back to your room you don't make me  
afraid,  
730 draft gears in eight months have been  
made.  
Before the good spirit got through taking  
notes,  
From the book containing the work reports  
Came a note from the office worked in haste,  
"Fire Inspector is here, clean up the place,  
See that all fire pails are full,  
Go around with this man and shoot the  
bull."

Just then the good spirit departed,  
But on the same night gave Willing a most  
astonishing vision,  
With a copy of the recording Angel's decision  
And a list of the hero saints all revealed.  
With A. T. Willing's name leading the field.

## Expects More Mills To Go Out of Business

Ultimately many more cotton mills, financially weak and physi-  
cally inefficient, will have to go out  
of business. Such is the conclu-  
sion in a booklet on "Cotton Man-  
ufacturing in New England," pre-  
pared by Harold H. Young for Bodell  
& Co., Providence, R. I.

The brochure develops an analysis  
of the question, "What is the reason  
for the inability of these mills to  
operate as profitably now as in the  
past?" It first disposes of erratic  
fluctuations of the cost of the raw  
material, cotton, as a vital hindrance  
to more constant profits "because all  
mills, wherever located, are subject  
to the same hazards."

"Unquestionably, it continues, "the  
answer to the problem is Southern  
competition." The article then pro-  
ceeds to analyze the advantages of  
the South as compared with New  
England.

It lists first of all the publicity  
activity of chambers of commerce,  
railroad and power companies and  
other interested parties. "If New  
England communities worked as  
hard to hold their industries as the  
South does to win them, the exodus  
might be partly checked," summa-  
rizes the article.

Next it takes up the proximity of  
the mills to the source of raw mate-  
rial, and the consequent transporta-  
tion savings, and the cheap electric  
power, and finds them both of minor  
importance. "Both North and South  
Carolina consume more cotton than  
they grow. Although the same is  
not true of Georgia. Cotton is ex-  
ported from that State in such  
amounts that the needs of its mills  
must be met in part from outside."

The one fundamental advantage of  
the South is in respect to labor, the  
article contends. Lower wages, more  
favorable State laws and absence of  
arbitrary restrictions imposed by the  
workers are given as the contributory  
causes. But, it is pointed out,  
wages do not represent the total  
labor cost of many Southern mills.  
Housing and recreational provisions  
for the mill villages are extra costs  
although they do not wipe out the  
entire savings. The fact that most  
Southern white labor is native born,  
is cited as a partial assurance  
against labor disturbances and op-  
position to introduction of new  
methods. Nevertheless it is argued  
that "there is sure to be agitation  
for more stringent labor laws in  
Southern States" and for a narrow-  
ing of the disparity in wages, which  
will tend to equalize conditions in  
the North and South.

Finally, commenting on overpro-  
duction as the chief trouble in the  
industry, it says "mills will have to  
pass from the picture in the South  
as well as in the North for there is  
nothing magic about Southern lo-  
calities."

The article then warns against  
disposal of securities of the good  
New England mills at present low  
prices "as they should ultimately  
realize higher prices. The reason  
for the drastic shrinkage in stock  
prices," it says, "is the loss or im-  
pairment of the mills' earning ca-  
pacity."



# SCOTT TESTERS

*Are you getting  
the yarns you  
are paying for?*

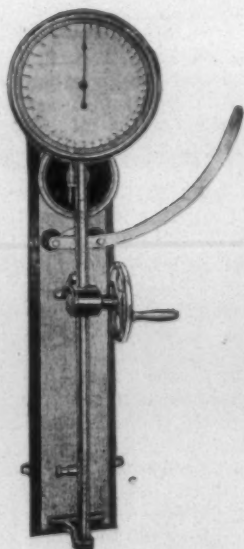
Are you taking considerable for granted or are you taking every reasonable precaution to see that the confidence your customers have in you is properly safeguarded?

You are not exercising due care if you are not utilizing every practical safeguard to quality.

## BEFORE and AFTER WEAVING TESTS

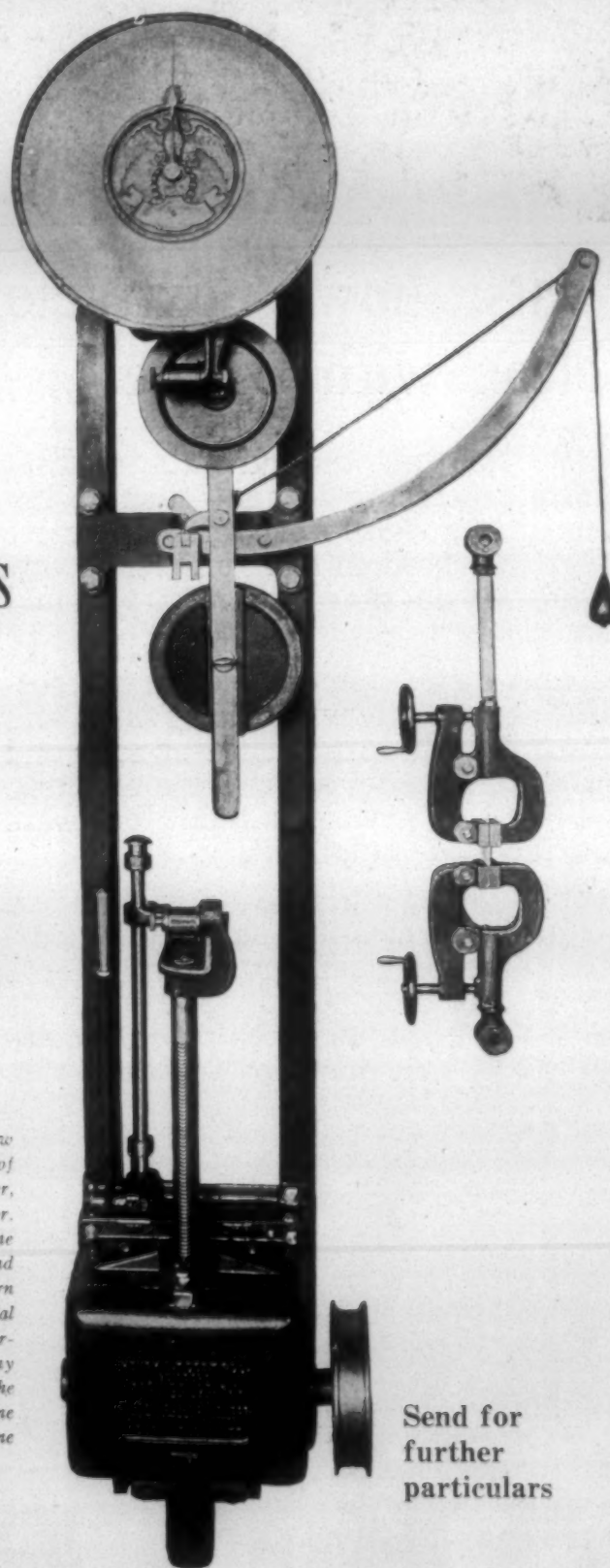
In Process Checking, Yarn Test, Fabric Test, After Bleaching, After Drying, Finished Goods can be made on this Scott Testing machine establishing standards of strength for both yarn and fabric; affording a positive assurance of uniformity and eliminating all question of doubt—all need for excuses. Competitive products today may be of like quality sample for sample, and with standardized processes and costs—then the only definite sales argument is dependability. You can make this argument definite and real if you have and use those devices which mechanically and unvaryingly tell the truth.

## TESTERS FOR ALL PURPOSES



At the left we show hand operated yarn tester built in four sizes with maximum capacities 100 pounds, 150 pounds, 200 pounds and 250 pounds. No springs, no delicate parts or complicated adjustments.

At the right is close-up view of dial and mechanism of Scott Automatic Yarn Tester, belt drive from small motor. A double range machine combining a 150 pound and a 300 pound maximum yarn tester in one. No special wiring is required and current may be used from any convenient light socket. The automatic action of machine reduces time to less than one minute per test.



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further  
particulars

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**A** PART from all the advantages that Oakite processing brings—such as improved finish of goods, level dyeing, complete bleaching, and freedom from oily and soapy odors—there is another benefit that should not be overlooked.

Oakite keeps the equipment used in processing—vats, scouring bowls, fulling mills and extractors—free from dirt, used-up soap and scum. Oakite does not allow these residues, and emulsified oil, grease, and lint to adhere to the surfaces of equipment.

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\*Stocks of Oakite Materials are carried in these cities.

# OAKITE

TRADE MARK REG. U.S. PAT. OFF.

## Industrial Cleaning Materials and Methods

## The Drawing Frame in Cotton Spinning

Prize Winning Essay, by P. H. Haslam, of Bury, England, in the Fourth of a Series of Competitions promoted by John Hetherington & Sons, Manchester, England.

**T**HE drawing frame is one of the simplest and yet most vitally important machines employed in cotton spinning. To the inexperienced person the machine appears to serve no useful purpose in that it does not make any apparent advance in the work of reducing the bulk of the sliver in readiness for subsequent machines. As a matter of fact, the sliver delivered at the last drawing head is often approximately the same weight per yard as that delivered by the carding engine.

In order that a strong, even yarn may be produced from any given length of staple it is absolutely essential that the fibres must be in parallel order before twist is put into them and that the sliver be regular in diameter and weight per yard throughout its length. As the drawing frame brings about these very necessary requirements in the sliver its importance at once becomes apparent. The first requirement, namely, that of placing the fibres in parallel order is brought about by passing the slivers through four pairs of parallel rollers each pair running at a higher surface speed than and is carried out three or four times in all.

The difference in the speeds of each pair of rollers causes the fibres to be drawn over each other, thereby arranging the fibres in somewhat parallel order. The sliver is made regular in diameter and weight per yard by means of doubling this process taking place simultaneously with drafting. A number of carded slivers (usually six) are put behind each delivery of the first draw frame and then drawn into one sliver of approximate weight and bulk to the original carded sliver. The procedure is repeated at the second and third heads of draw frames by similarly putting up the slivers produced at the first and second heads respectively. Thus with three heads of draw frames and six ends up we get two hundred and sixteen doublings, and with four heads twelve hundred and ninety-six doublings are obtained. Having thus briefly described the work of the draw frame I will now mention the most important factors on which depend the successful working of the machine.

One of the greatest factors in obtaining an even sliver is an efficient stop motion. The commonest type of stop motion is a mechanical one operated by an eccentric and several levers. The slivers pass over spoons at the back of the machine, and if a sliver breaks or can runs empty the spoon falls into the path of a lever and stops the machine. Assisting rollers are of great advantage in that they not only assist the sliver from the cans but also maintain a regular tension in the sliver as it passes over the spoons. The spoons must act promptly so that the machine will be stopped before a broken end enters the back pair of

drawing rollers. The trumpets in the front stop motion should be adjusted according to the weight per yard of sliver worked and they should act promptly in the event of a roller lap or very uneven end coming through. The full can stop motion should be kept in good working order and set so that each set of cans will contain the same length of sliver when full. An electrical stop motion producing similar results to the mechanical motion is fitted by some firms.

In all drawing frames there are four pairs of drawing rollers. The bottom rollers are fluted and made of steel and should revolve easily and truly in their bearings. The flutes should be cleaned by scouring at regular intervals. The top rollers are generally leather covered and should be kept in good condition and the front line well varnished before use. Some people prefer loose boss front top rollers but most rollers are now fitted with loose bushes to all top rollers.

A little over twenty years ago there was introduced into this country a metallic drawing roller for use in both top and bottom lines. These rollers have flutes much deeper than the ordinary bottom roller, and in working, the flutes intermesh like wheel teeth but are prevented from riding in the bottom of the flutes by collars or bosses of suitable diameter. There is a great diversity of opinion as to the merits of these rollers but generally speaking they are condemned chiefly by those who have not given them a fair trial.

When first these rollers were installed in mills the gearing was often badly arranged, this state of affairs resulting from some machinists not understanding the effect caused by the different sizes of flutes used in these rollers. This naturally played havoc with the drafting of the sliver and got the system a bad name. In actual practice a 1.25 inch diameter metallic front roller with forty flutes delivers a length equal to an ordinary roller at 1.6 inches diameter. Similarly a back metallic roller of 1.25 inches diameter with twenty flutes takes in length equal to an ordinary roller of 1.8 inches in diameter. If we use 1.25 inch diameter rollers with twenty flutes for back and third lines and rollers with forty flutes for front and second lines, it is not until we know these dimensions that we can arrange for our middle draft which should be about 1.75.

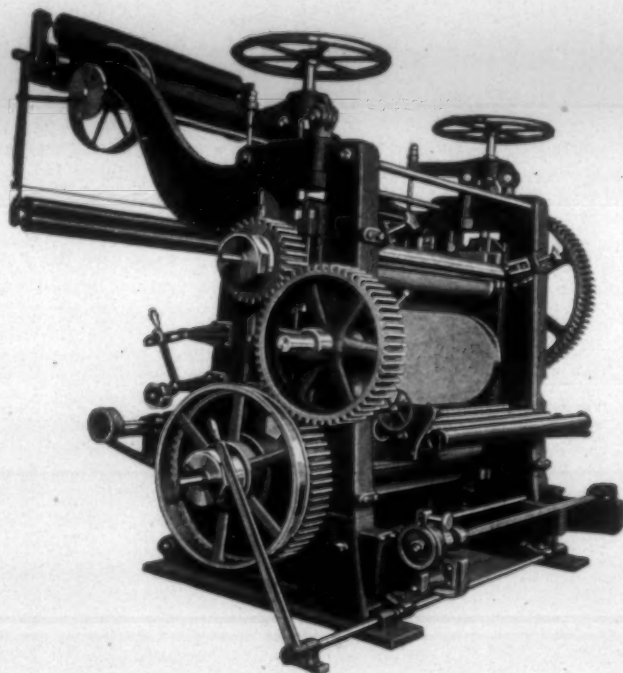
These dimensions also affect the tension draft before and after the drawing rollers, and as we all know the tension draft in every machine used in cotton spinning must be reduced to a minimum. Thus we must not be satisfied until we have taken out the stretch between the single preventer rollers and back line of drawing rollers. The latter may be

(Continued on Page 34)





# Calenders



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# SOUTHERN TEXTILE BULLETIN

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Managing Editor  
Associate Editor  
Business Manager

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## ADVERTISING

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Address all communications and make all drafts, checks and money orders payable to Clark Publishing Company, Charlotte, N. C.

## Advocating Russian Vulgarity

A Mrs. William Spencer Murray, who states that she went to Russia in November for a month's stay as a delegate from the New York branch of the Society for Cultural Relations with Russia to aid in the celebration of the tenth anniversary of the Russian revolution, was a speaker last week before a class of the University of South Carolina.

She described a "perfect" performance of "Antigone" done by Thiernov and an unabridged performance (such as is never given in America) of the Moussorgsky opera, and deplored the fact that most of the best Russian moving pictures which are sent to this country are cut.

When Mrs. Murray had finished praising Soviet Russia and had spent much time telling the students that we are wrong in refusing to show on our stages and to the children who visit our moving pictures Russian plays with all of their filth and unabridged vulgarity the young men at the suggestion of their professor, William Dean, gave Mrs. Murray a rising vote of thanks.

In the Survey of October, 1926, Paul Blanshard said:

"College radicalism grows in the Liberal Club, Round Tables, Students Forum or simply a chapter of the League (League for Industrial Democracy, which was formerly called Intercollegiate Socialistic Society).

Paul Blanshard also said in his address before the Penquin Club in Washington:

"We must educate the young. We must peg into the minds of the young while those minds are still plastic."

"One agency in America that is trying to get the students interested in this question is the colleges."

A woman just back from helping the Soviets celebrate the anniversary of their Revolution is brought to the University of South Carolina and after commending Russia and Russian vulgarity is given a rising vote of thanks at the suggestion of the professor who brought her there.

Probably this exponent of Russia received her expenses and a fee from money contributed by the tax payers of South Carolina.

The never ending stream of these radicals, atheists and sexologists as lecturers at our colleges and universities seems to prove the statements of Paul Blanshard, in fact, we are beginning to wonder if there is not more of an organization behind this movement than has been realized.

## 1928 Cotton Possibilities

THE campaign for a reduction in cotton acreage seems to be gaining ground and is greatly encouraged by the present decline in the price of cotton, the high price of fertilizer and the prospective emergence of boll weevils.

The Progressive Farmer in its leading editorial last week states that there have been six well marked campaigns for acreage reduction and that all of them have been successful.

They give the following as the record of those campaigns:

1895 Acreage reduced 14.7 per cent	price increased 65 per cent
1905 Acreage reduced 13.1 per cent;	price increased 20 per cent
1915 Acreage reduced 14.1 per cent;	price increased 66 per cent
1919 Acreage reduced 7.4 per cent;	price increased 29 per cent
1921 Acreage reduced 15.0 per cent;	price increased 17 per cent
1927 Acreage reduced 12.5 per cent;	price increased 60 to 65 per cent

Our present reports indicate that there will be about 44,000,000 acres planted, which would, with the usual abandonment, mean 43,000,000 acres harvested.

As we have often stated, a crop is composed of the number of acres multiplied by the yield per acre.

Assuming that our figure of 43,000,000 acres is correct, it is interesting to calculate the number of bales that would be produced at the various yields per acre.

43,000,000 Acres.		
Lint Yield Per Acre		1928 Crop
130 (1923 yield)		11,690,000
140 (1922 yield)		12,590,000
150		13,490,000
152 (1927 yield)		13,670,000
157 (1924 yield)		14,130,000
160		14,390,000
167 (1925 yield)		15,030,000
170		15,290,000
180		16,190,000
182 (1926 yield)		16,390,000

These figures give the possibilities of the 1928 cotton crop based upon 43,000,000 million acres harvested.

If, as many profess to believe, the acreage planted proves to be only 42,000,000, which will mean 41,000,000 harvested, each of the above figures will be reduced 1,800,000 bales and the maximum possibility for 1928 will be 14,400,000 bales.

With the reduction campaign now under way and the farmers sore over the manipulated decline in price, it is entirely possible for the acreage to be reduced, but we expect it to be increased to 44,000,000 planted, which will mean 43,000,000 harvested.

There seems to be an impression that the 1927 crop was the result of bad weather, whereas 1927 was a season of good cotton weather, especially during the fall season.

The 12,800,000 crop of 1927 was due to small acreage and boll weevil damage.

With very small increase in acreage and the probability of greater boll weevil emergence there is little reason to expect more than 152 pound average lint yield of 1927.

With 43,000,000 acres harvested and the same yield as last year the crop would be 13,670,000, and no matter how hopeful anyone may be, any crop in excess of that figure is based upon optimism rather than reasonable expectation.

The world carryover of American cotton on August 1, 1928, will not be in excess of 4,500,000 (our estimate is 3,800,000), and assuming the above figures we have the following picture:

Carryover Aug. 1, 1928	4,500,000
Reasonable expectation	
1928 crop	13,670,000
Supply	18,170,000
Consumption 1928-29	15,500,000

Carryover Aug. 1, 1928..... 2,670,000

All of these figures are conservative, as the acreage and crop may be lower and the consumption may be higher, in fact Tattersall last week estimated the world consumption of American cotton for this season at 15,650,000 bales in the face of curtailment.

This editorial is not intended to

throw a scare into anyone, but we think it well to occasionally study the possibilities of the future.

Acreage may be reduced, an unfavorable growing season may prevail, boll weevil damage may be large and the consumption of cotton may, in keeping pace with the increasing population of the world, go above 16,000,000 bales.

We are, at least, in the position that it will require an exceptionally fine cotton season in order to raise a crop sufficient to prevent a severe reduction in the world carryover of American cotton.

Even though a large crop is the ultimate result, there are likely to be several severe scares this spring and summer.

## 50c Per Mill

THERE are very few mill executives in the South who are not familiar with the exceedingly valuable work being done by the Southern Textile Association. Yet it appears that only a small number of them are interested enough to be willing to help the Association carry forward its work. A few of the mills are paying membership dues for their superintendents and overseers and encouraging them to take an active interest in the work of the Association. Such mills appear to be in the minority.

We are reliably informed that the actual financial support being rendered the Association amounts to 50 cents per mill, a pitiful showing.

The Association has never called upon the mills for any financial assistance except to ask them to pay dues for their men. We are sure that none of the mills could make a better investment, in fact we do not believe that any similar investment is as sure to return dividends.

The superintendents and overseers who are taking an active part in the work of their Association have only one object in view. That is to increase the operating efficiency of Southern mills. It is true, that they also increase their own personal efficiency, but we are sure that the benefits to the mills are greater than those to individuals. We know of no better way to help any mill than by saving its money and the work of the Association has certainly been a factor in operating economy.

We believe that the Southern Textile Association is worth real money to the mills and are writing this in the hope that more mill men will come to appreciate this fact and show their appreciation by a more generous and friendly support of its activities.

## Weavers Meet

THE Weavers' Division of the Southern Textile Association met Wednesday at Clemson College, S. C. The attendance was large and a very interesting meeting was held. L. L. Brown, chairman, and W. A. Black, vice-chairman were in charge of the program, which included both plain and fancy weaving.

A full account of the meeting will appear in these columns next week.



## Personal News

W. E. Rambow has resigned as superintendent of the Southern Brighton Mills, Shannon, Ga.

H. T. Mason has been appointed dye specialist at the Eagle & Phenix Mills, Columbus, Ga.

R. L. Poovey has resigned as superintendent of the Paola and Bloomfield Mills, Statesville, N. C.

R. A. Morgan, agent for the Southern Brighton Mills, Shannon, Ga., will hereafter act as superintendent also.

E. C. Goodwin, of Gastonia, N. C., is now head card grinder at the Southern Brighton Mills, Shannon, Ga.

R. A. Fairchild, formerly of Cherryville, N. C., is now overseer spinning at the Salisbury Cotton Mills, Salisbury, N. C.

T. L. Keever has resigned as night overseer of carding at the Johnston Manufacturing Company, North Charlotte.

W. L. Ward, secretary and treasurer of the Leward Cotton Mills, Worthville, N. C., has been elected president of the Chamber of Commerce, Asheboro, N. C.

A. C. Port, general sales manager of the P. H. Hanes Knitting Company, Winston-Salem, N. C., has been elected president of the Chamber of Commerce in that city.

C. G. Voss, formerly superintendent of the China Grove Cotton Mills, China Grove, N. C., has become superintendent of the Paola and Blomfield Mills, Statesville, N. C.

John Cheatham, president of the Georgia-Kincaid Mills, Griffin, Ga., has been presented with a silver loving cup as Griffin's leading citizen.

R. E. Hightower, Sr., president of the Hightower group of mills of Thomaston, Ga., has purchased very valuable real estate in Atlanta, making his third major investment there within the last year.

W. T. Garner has resigned his position with the Peerless Mills, Thomaston, Ga., to become overseer of weaving at the Inman Mills, Inman, S. C.

Roy Furr has been promoted from second hand in day carding to overseer of night carding at the Johnston Manufacturing Company, North Charlotte.

E. G. Price has resigned as overseer of carding and spinning at the Cannon Manufacturing Company, Kannapolis, N. C., to become night superintendent of the Clyde Mills No. 1 and 2, Newton, N. C.

H. J. Whitin has resigned as second hand in carding at the Southern Brighton Mills, Shannon, Ga., to become overseer of carding at the Social Circle Mills, Social Circle, Ga.

### Leroy Springs Shot By Cotton Broker

Col. Leroy Springs, president of the Lancaster Cotton Mills, Lancaster, S. C., one of the most prominent cotton manufacturers in the South, had a narrow escape from death Monday morning when he was shot by Eldred Griffith, well known cotton man of Charlotte. Col. Springs was wounded in the face, but it is not thought that his injuries are serious.

The shooting, which is supposed to be the result of a business feud of long standing, occurred on North Tryon street in Charlotte. The two men were in conversation when Mr. Griffith drew a gun and fired on Col. Springs, the bullet entering his cheek. Witnesses stated that Mr. Griffith attempted to fire again but that the gun snapped.

Mr. Griffith was arrested, released on bond and will be tried after the extent of Col. Springs' injuries are more definitely known.

### Obituary

#### Sam Turner.

Sam Turner, overseer of weaving at the Selma Cotton Mills, Selma, N. C., died last week at the Rex Hospital, Raleigh, N. C., where he underwent an operation for appendicitis. Mr. Turner had been connected with the Selma Mills for the past 15 years or more, being overseer of weaving for the greater part of that time. He was highly regarded by the mill management and the employees. He was buried at Seneca, S. C., his former home.

#### Frank Ingram.

Frank Ingram, president and general manager of the Highland Mills, Griffin, Ga., was instantly killed when his automobile was struck by a passenger train at a crossing near Griffin.

No report other than the bare mention of Mr. Ingram's death was available at the time of going to press.

### Accidents in Georgia Mills Lead Other States.

During 1926 the State of Georgia had more total disability accidents in cotton mills than any other textile State. Besides there were enough temporary accidents in the State to give her second place in this disability. Government figures have just been released showing the accident experience of cotton mills and the accident frequency rate in this State is very high.

Gastonia, N. C.—Fire, originating in the opening room of a warehouse at the Loray Mill at 11:30 o'clock Tuesday morning, damaged around 200 bales of cotton and caused a total loss of around \$3,000.

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# MILL NEWS ITEMS OF INTEREST

**Paducah, Ky.**—The Arcadia Mills have let contract for the erection of a mill to manufacture full fashioned silk hosiery.

**Dallas, Texx.**—The Dallas Cotton Mills have ordered winding and warping equipment from the Universal Winding Company and the Saco-Lowell Shops.

**Birmingham, Ala.**—The Strowd-Holcombe Cotton Mills expect to let contract this week for a 2 story mill building 299x120 feet. Robert & Co., Atlanta, are the engineers.

**Wilson, N. C.**—The Wilson Rayon Products Company has been incorporated by Graham Woodward and Bruce Little. This is the organization of the company that is to build a rayon weaving plant here.

**Greensboro, N. C.**—Lous Baach and Max Leiderman have completed plans for establishing a mill here to knit children's hosiery. A building is to be erected and equipment moved from a plant in Philadelphia.

**Slater, S. C.**—Board of Directors of Slater Manufacturing Company, votes February 28 on increasing capital stock by issuing 5,000 shares of par value \$100 each, making capital \$1,500,000.

**Charlotte, N. C.**—The plant of the Savona Manufacturing Company, suffered considerable damage from water following a fire in the weave room. The sprinkler system flooded the room. Damage from the fire was very slight.

**Dalton, Ga.**—Crown Cotton Mills, have plans by Robert & Co., architects-engineers, Bona Allen Building, Atlanta, for warehouse; 4 stories and basement; 100x100 feet; brick and timber; tar and gravel roof.

**Lexington, N. C.**—The Shoaf-Sink Hosiery Mills have let contract to G. W. Smith for building an addition to the mill. The building will be finished in April at which time 300 additional knitting machines will be installed.

**LaFayette, Ga.**—The Ross Hosiery Mill has begun operations here.

The new mill is under the management of J. C. Abney, Floyd Mavity, Tom Cochran and J. E. Edge and is running both day and night shifts. About 300 pairs of men's hosiery are being turned out daily by the new mill.

**Harlingen, Texas.**—The \$300,000 Valley Cotton Mill here will be ready for operation this summer, according to P. M. Keller, manager.

Most of the brick and concrete work on the building is completed with only the flooring to be laid.

Mr. Keller will soon leave for New York to purchase mill machinery.



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**Montgomery, Ala.**—There is interest here, awaiting the incorporation of the 10 new cotton mills, to be built in this State, in conjunction with the Alabama Power Company. The machinery for the new mills is being moved from to Northern mills that were liquidated not long ago; the Everett Mills of Lawrence, Mass., and the Lyman Mills, of Holyoke, Mass.

**Malvern, Ark.**—Ground will be broken for the International Shoe Company's \$1,000,000 cotton textile plant at Malvern between March 1 and March 15, officials of the company state.

Residents of Malvern have the \$75,000 fund required to obtain the big industry guaranteed, advices from Malvern said.

The company will erect a textile mill to manufacture shoe linings and canvas gloves.

**Dallas, Texas.**—Thirty thousand shares of stock will be offered for sale during February in the proposed \$900,000 cotton mill and finishing plant to be located in Dallas, it was announced by the board of directors of the Dallas Chamber of Commerce. The new company will be called the Southwest Textile Mills.

The stock will include 12,000 shares of 7 per cent cumulative preferred stock, par value \$50, with full voting privileges, 12,000 shares of class A common stock with full voting privileges and without par value, and 6,000 shares class B common stock without par value and without voting privileges. One share of class A stock will be given with each share of 7 per cent preferred stock.

**Belmont, N. C.**—Operations have just been started at the new Thies Dyeing and Processing Company. The plant, equipped with machinery from Germany under the Thies patents, will engage in commercial dyeing and processing and bleaching of yarn. It has a daily capacity of 80,000 pounds of dyed yarn and 35,000 pounds of bleached yarn. For the present, it will handle cotton yarns only, but will later be equipped for handling rayon also. The mill, which is the 16th textile plant here is controlled by the Geers of Greenville and the Lineberger-Stowe interests. B. E. Geer is president, A. C. Linberger, Jr., vice-president and C. M. Geer, secretary and treasurer.

**Albemarle, N. C.**—The George W. Reid Company has been absorbed by the Stanly Hosiery Company, incorporated. Under new organization, the company is composed of the following officers: H. C. Turner, president; W. T. Foreman, vice-president and general manager; J. N. Lilly, secretary and treasurer. Directors Dr. William Harward, W. T. Foreman, H. C. Turner, D. D. Parker, W. E. Smith, J. N. Lilly and J. E. Long.

Mr. Foreman, who becomes gen-



eral manager, has been with the firm the past year. He has had extensive experience as traveling salesman coming to Albemarle a year ago from Hagerstown, Md.

Mr. Lilly has been in the office of the company the past two years or more.

**Tailors, S. C.**—Potter & Shackelford, general contractors who are building the Piedmont Print Works, Greenville, S. C., announce the following sub-contractors: steel, Southern Engineering Co., Charlotte, N. C.; cast iron columns, American Cast Iron Pipe Co., Birmingham, Ala.; reinforcing steel, Greenville Steel & Foundry Co., Greenville, S. C.; steel sash, Wm. Bailey & Co., Springfield, Ohio.

The buildings being constructed under the present contract are the dyeing and printing building, 240x293 feet; one and two-story and basement. Finished goods storage and office building, 50x200 feet, two stories. Box shop, 50x100 feet, one story. And boiler house.

Approximately sixty houses will be erected for employees.

J. E. Sirrine & Co., are the engineers.

**Spartanburg, S. C.**—Actual construction of a plant to house the rayon converting mill of the Yarns Corp. of America will begin this week, it was announced by Lockwood, Greene & Co., architects and engineers.

No approximate cost of the first unit has been revealed, but it is estimated that the entire plant will cost \$300,000. The company is capitalized at \$800,000 and has its headquarters in New York City, where it was incorporated under the laws of New York, January 15, 1927. R. Grisman, president of the company, has been in the city for several days.

The local project has been handled through the A. M. Law & Co., Southern cotton stocks brokers. Mr. Grisman recently has inspected several textile manufacturing plants here and at Greenville.

The Yarns Corp. of America already has developed from its Northern plants a profitable business in the South, it was stated, but realizing this can be greatly increased by being on the field and that the fancy goods business is gradually moving South, the company decided to build a plant to take care of Southern trade more adequately.

**Greenville, S. C.**—A modern village costing around \$125,000 will rise on the banks of the Enoree river, nine miles from Greenville, within the near future, bids having gone out for the construction of 60 modern houses for the Piedmont Print works at Tailors. The contract will

be let next week, the exact time not having been designated.

The operatives' houses will be four, five and six rooms each, while the houses for the overseers and other officials will be larger. A unique and attractive type residence will be built, according to Harry Stephenson, who made the announcement as to the houses.

The plans were drawn by Jones & Trott, local architects, while the bids went out from the office of J. E. Sirrine & Co., mill engineers.

**Greenville, S. C.**—All of the looms have been installed in the Slater Mill, at Marietta, and a small number are now in operation, it was announced.

Only samples are now being run, officials of the mills said, and the entire plant may not be in operation for some time. Lack of water and sewerage connections are hindering its start of operations, it was said, as proper facilities are not available in the village to take care of a large population.

Until these facilities are provided the village will not be filled up, although it is said that plenty of help is available now, should it be desired. The plant has 720 looms which were removed from the Slater mill in New England.

Ten thousand spindles will be installed, but these will be new and will have seen no service before being placed in the Marietta plant.

Mechanics are scheduled to arrive this week to superintend the installation of the spindles and other equipment.

**Blacksburg, S. C.**—The Blacksburg Spinning Mills held its annual stockholders' meeting last Friday, re-electing S. A. Sifford, president; C. N. Alexander, treasurer and manager; C. W. Whisonant, vice-president. These, with two newly elected directors, R. A. Dobson and J. W. Brown of Gaffney, constitute the board of directors. The directors meeting followed, electing A. N. Sifford, secretary, the latter having been acting as secretary during the past year.

### Wiscassett Mills Pay Dividends

Directors of the Wiscassett Mills, of Albemarle, N. C., at a meeting held Saturday, declared a dividend of 5 per cent. The payment will be made immediately.

At the regular monthly meeting of the board the matter of the dividend was deferred, pending a decision of the Supreme Court on the suit brought by J. F. and M. L. Cannon to force the directors of the company to pay an additional dividend.

The court ruled that the additional dividend should be paid but did not state in what amount, and it is expected that this phase of the matter will be threshed out later before a judge or jury.

It is learned that the 5 per cent dividend ordered paid immediately is from current earnings of the company and does not affect in any manner accrued earnings.

In the suit brought against the company it was charged that the directors were holding about \$1,500,000 in earnings in addition to the working surplus.

Company officials denied that there was any such surplus, and the Supreme Court ruled that the exact amount of such surplus, if any, should be decided in further action to be held before a judge or jury.

M. L. Cannon withdrew from the suit several weeks ago but the action is still being prosecuted by J. F. Cannon.

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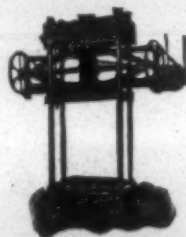
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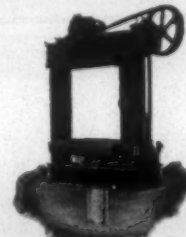
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## Urges Mills To Adopt Scientific Methods

Greenville, S. C.—Great strides have been made in the textile industry during the past two years. The period has been one marked by achievement. And this achievement has brought the industry up to a pinnacle of perfection far above that of former years. But this pinnacle is as high as can be reached through travel along old lines based on old methods. If further heights are to be attained, mill executives must operate along new and scientific lines which are based on sound, clear, logical engineering principles. Else, instead of climbing to higher performances, the industry, or such plants which do not, will slip quickly down the other side into the valley of failure.

That was the keynote of an address delivered by John W. Cox, Jr., chairman textile division American Society of Mechanical Engineers, and consulting engineer of New York, at a meeting of the Greenville section of the society held in the Poinsett hotel.

Mr. Cox made an eloquent and able plea for efficiency in textile manufacture and urged the engineers there assembled to keep abreast of the times and place manufacture abreast of the times in matters of development and thereby avert failure.

At the outset, Mr. Cox said that generally speaking the textile industry, while it had progressed greatly during the past two years, it was not in good condition. He explained that a portion of the mill curtailment was due to over production, but a greater portion was the result of uniting antiquated methods and machinery which was modern 30 years ago.

Mr. Cox explained that the industry had been developing for 300 years and that it had been and is now, to a large extent, a father to son, hand to mouth process.

"Such were the methods of my father, and my father's father, I know they are good and sound."

"This statement," Mr. Cox said, "I have heard many times. But it is wrong. There is new engineering knowledge, there are new operation bases which must be employed, if the operator is to be rewarded with success."

He then pointed out that textile industry in the South was comparatively new whereas the New England industry was old and the "father to son" condition more pronounced.

"But," he said, "while this condition is worse in New England, the South need not sit back and think that through its natural advantages it cannot be beaten in a game of competition. Some of the mills in New England are doing wonderful things, things that even to me are marvelous and they are making money hand over fist under the worst conditions possible."

He then mentioned the laws in some New England States, the 48-hour labor law, the law that no woman can work at night, high taxes, great insurance premiums, textile equipment laws and like things,

which are great handicaps to manufacturers.

"And still these plants are showing splendid profits. How do they do it?" he asked, "simply because they are abreast of the times. They are taking advantage of every new discovery, every new plan and idea that is found to be sound. Such things you of the South must do if you expect to compete successfully."

He asked why was it that German mills could take waste, which American mills throw out of the window, as worthless, and spin it into excellent cloth.

"Why?" he said, "simply because they operate along sound principles of engineering and make no hit and miss, 'I guess' and 'I believe' system of it."

The speaker mentioned how the late Charles P. Steinmetz created a great sensation at Cornell University when he presented the plans for a machine he wanted built all worked out on paper by mathematics.

"Steinmetz was the electric and mechanical wizard because he attacked his problems along sound mathematical and engineering principles."

Mr. Cox flayed the current tendency of some mill executives, who wanted to increase production, speed up all their machinery.

"What is the result?" he asked. "They make more seconds and less firsts. More cloth is produced but of a poorer and less valuable grade. Speeding up machinery might be the proper thing in one department, and entirely the wrong thing to do in another. The entire system should be scientifically investigated so that the executive might know just what was going on everywhere. And he does not have to be an engineer to do this—to understand what is happening in his machines. In one plant I inspected in the South recently I found that no two looms in a shed of 52 were working at the same speed or in the same fashion. They were all of the same make and had all been set up by the same man but they were set up differently and some improperly. Consequently they were far from efficient."

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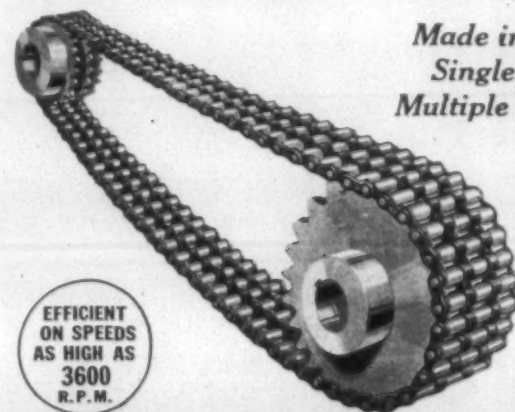
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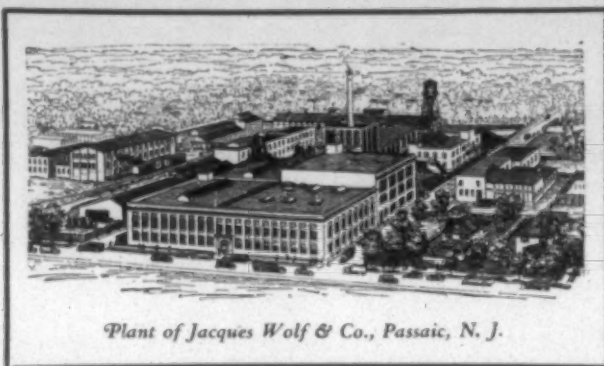
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### South Now Leads in Cotton Mills

That the South now leads all other parts of the United States in cotton manufacturing capacity is brought out in the 1928 edition of the Southern Railway System's Textile Directory, just issued.

As of January 1, 1928, there were in Southern mills a total of 18,399,832 spindles, this being 305,168 more spindles than in the cotton mills of all the other States, the directory says. Since 1880, when the South had only 5.27 per cent of all the cotton spindles in the United States, there has been a steady, almost uniform increase from year to year, until now 50.42 per cent of the total are in Southern mills. Of the total spindles in the South, 13,562,332, or 73.71 per cent, are at points served directly by the Southern.

The directory shows that in 1927 Southern mills consumed 5,404,711 bales of cotton, or 72.97 per cent of the total consumption of the United States in that year, and Southern mills, with 18,399,832 spindles in place, operated 67,865,118,776 spindle hours, while mills in all other States, with 18,094,664 spindles in place, operated 36,540,348,894 spindle-hours. In other words, Southern mills, with 50.42 per cent of the spindles in place, worked 65 per cent of the total spindle-hours of the year.

Cotton mills at points served by the Southern Railway now contain 266,433 looms. There are also at these points woolen and worsted mills containing 123,724 spindles and 2,099 looms; silk mills containing 41,200 spindles and 2,219 looms; knitting mills containing 54,89 knitting machines and braider mills containing 3,320 braiders. Mills under construction at the end of the year will, when completed, contain 13,000 spindles, 562 looms and 200 knitting machines.

The first units of a large rayon manufacturing plant was placed in operation during the year at Elizabethton, Tenn. An additional unit of the same plant and two units of another plant are now under construction at the same place. Another large rayon manufacturing plant is under construction at Burlington, N. C.

The directory lists all of the textile manufacturing plants at points served by the Southern, giving the equipment, kind of power used, and character of goods manufactured. An interesting feature is a map showing the geographical location of the textile plants in this territory, together with the electric power lines and coal fields, bringing out the facts that electric power is available in practically every locality and that coal is easily accessible to all parts of the territory.

### The Drawing Frame in Cotton Spinning

(Continued from Page 26)

tested by wrapping the sliver with the top single preventer roller in position and again with the roller removed. Metallic rollers exercise a positive draft owing to the top rollers being positively driven by

the intermeshing of the flutes while leather rollers are driven only by frictional contact. The frictional contact required is produced by heavily weighting the top leather rollers weights of about 20 lb. being generally applied to each end of the rollers.

Some people claim to obtain a big improvement by the addition of another 10 lb. to the rollers next the front when working slivers of over 48 grains per yard. Metallic rollers only require 10 lb. weight at each end, this weighting being generally sufficient to keep the bosses in rolling contact. Weight-relieving motions are necessary on draw frames fitted with leather covered rollers in order to prevent flat sides being put on the rollers when they are left in the machines during a long stoppage. Metallic rollers obviously do not require a weight relieving motion, neither do they require covering or varnishing. They also give a greater production than ordinary rollers of the same diameter and owing to the extra length turned out at each revolution, and they can be set closer than an ordinary roller of equal perimeter.

With Sea Islands cotton the diameters of the rollers are generally as follows:—Front  $1\frac{1}{2}$  in., second  $1\frac{1}{4}$  in., third and fourth  $1\frac{1}{2}$  in., and the speed of the front roller is between 160 and 220 r.p.m. With Egyptian cotton the diameters of the rollers from front to back are  $1\frac{1}{2}$  in.,  $1\frac{1}{4}$  in.,  $1\frac{1}{2}$  in., and  $1\frac{1}{4}$  in., the front roller making 250-300 r.p.m. With American cotton the rollers are  $1\frac{1}{4}$  in.,  $1\frac{1}{2}$  in.,  $1\frac{1}{4}$  in.,  $1\frac{1}{2}$  in., in diameter reading from front to back, the front roller speed being between 300 and 350 r.p.m. For Indian cotton the front and two back rollers are  $1\frac{1}{2}$  in. diameter, while the second roller is usually 1 in. diameter, the speed of the front roller ranging from 350 to 400 r.p.m. It may be seen from the above that the poorer the class of cotton manipulated the smaller the diameter of the rollers required and the faster the speeds at which they run. If the same production is required metallic rollers are run at proportionately lower speed on account of their perimeters being greater than the circumferences of ordinary rollers of the same diameter.

For a total draft of six or thereabouts a back draft of 1.25 and an intermediate draft of 1.75 are known to give satisfactory results; these drafts may be proportionately increased for a higher total draft. It is generally accepted that the draft at the finishing head should be slightly greater than the draft at the second head which in turn should be greater than the draft at the first head. In very fine quality mills the size of the change pinion is a very important matter; some have a pinion of 55 to 60 teeth, but also change the crown wheel (110-120 teeth) at the same time in order to keep within one per cent of the standard weight; most firms, however, only alter the change pinion which in this case should have between 70 and 80 teeth.

The distance from centre to centre of the rollers must be in accordance with the class and weight of cotton being drawn, and particular care should be taken to see that the roll-



ers are perfectly parallel to each other. The distance from the centre of the front roller to the centre of the second should be just outside the staple length of the cotton, the second and third settings being increased by  $\frac{1}{4}$  in. and  $\frac{1}{4}$  in. respectively. Rollers may be set closer with carded and light slivers than with combed and heavy slivers.

Owing to the nature of the work of the draw frame and the bulk of material worked a comparatively large amount of flat waste is created and unless it is collected and removed it will accumulate and then pass in with the sliver, thus causing many bad ends and much trouble. The waste is collected by flats pressing against both top and bottom rollers, there being several mechanical methods of removing this waste from the flats. Most of the appliances, however, only work on the top clearers so that in almost every case the under clearers must be cleared by hand. This must be done at regular and frequent intervals daily. With leather rollers a smooth, hard setting varnish which does not crack will do much to reduce flat waste.

Coiler bottoms should be set so that the coils are laid fully clear of the centre and sides of the can. When drawing combed sliver it is advisable to have springs in the cans in order to minimize the risk of rupturing the slivers when they are lifted from the cans at the next machine.

To facilitate production on a drawing frame it is essential that the tenter should have a definite system for putting up cans. Thus on the first passage of drawing it is a good practice to put up a set of full cans in one row, giving two full cans to each delivery. Each row should run up at a regular interval. An efficient full can stop motion gives us cans each containing an equal length of sliver, and these cans should all be put up at one delivery if six deliveries per head and as near as possible if more than six deliveries. This system is sometimes repeated at the finishing head, but some prefer to put up the cans in successive rows, first under one half of the machine, then under the other half, and so on. On no account should a tenter be allowed to have cans running empty individually throughout her preparation.

Finally for efficient running and the minimizing of fly waste it is essential to have a temperature of 74 deg. to 80 deg. F. and a relative humidity of 53 per cent.

### Cotton Mills and Their Workers

A press dispatch relates that "a close study of political conditions, opportunities for creating more harmonious relations between employees, plans for minimizing accidents in factories and proposals for conducting physical examinations of workers, were recommended to the members of the American Cotton Manufacturers' Association by its executives in articles published in the latest issue of the association's official gazette."

This is an interesting program

which we hope will have more than verbal weight. It is not clear from this excerpt to just what extent the manufacturers expect to create "more harmonious relations between employers and employees." Nor is it stated what plan is to be followed in that respect. It is encouraging nevertheless to know that some kind of active effort is to be made in behalf of the cotton mill workers, for presumably if there is any kind of inharmony on their part it can be rectified by curing the condition causing it.

In the absence of any vehicle of expression of the cotton mill employees as to just what they desire in improving their lot, efforts to establish more harmonious relations with them may conceivably be directed in the wrong direction. Would not accuracy suggest an expression from those most concerned? It would be pertinent, for instance, to have their views regarding the paternalism of the mills, the curtailment programs which have become more or less frequent in recent years, and their attitude toward better wages.

These are problems of vital importance to the mill workers. Consideration of them is of mutual interest to the employers and employees because the success of the Southern textile industry depends upon thoroughly satisfied workers. If they have any smouldering resentments it is better for everybody concerned that they be vented in the early stages. Inasmuch as the chief advantage of the Southern mills over their Northern competitors lies in the saving in labor charges it is most important to the manufacturers that harmonious relations be perpetuated. The cotton mill employee deserves first consideration from an economic as well as a humanitarian standpoint. — Greenville Daily News.

### Chicopee Distributes Longer Staple Seed

Gainesville, Ga. — The Chicopee Manufacturing Corp., of this place, has received a carload of pedigreed Acala cotton seed, which is to be distributed to the farmers of Hall and adjoining counties in pursuance of the plan of the mill to encourage the raising of a longer staple cotton in this part of Georgia.

This distribution of seed follows up the initial experiment inaugurated last year by the corporation, when four farms were conducted for the purpose of determining whether this kind of cotton could be successfully raised here. The farms were of 40 acres each, and the yield was approximately a bale to the acre. Those operating the farms received two and a half cents a pound premium on the cotton by reason of the length of the staple.

According to E. A. McCormick, who is in charge of the Chicopee Mills the terms of the distribution of the car of seed are, that the farmers who receive the seed must return an equal amount of seed on December 1, and the planting of a minimum field of 10 acres or maximum field of 40 acres.



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National Headquarters

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## Exports of American Cotton And The World Cotton Industry

(Continued from Page 16)

what in the early part of May, and foreign buyers, anticipating lower prices, did not make many purchases in June. Demand from the Near East, however, improved somewhat while foreign sales from the Continent were reduced. During the last six months of the year the cotton goods market became worse, and, owing to decreased demand in both domestic and foreign outlets during August, the short-time committee recommended restricted operations in the weaving mills.

### Operations Below Normal in French Cotton Industry.

The depression in the cotton industry of France, which was prevalent for the major portion of 1926, continued to reflect unfavorable tendencies during 1927. At the beginning of the year the mills were working at 25 per cent below capacity and operations were further reduced during February. A revival of activity was witnessed in August and September, but during October the mills again were forced to go on a short-time schedule, although the spinning mills at Roubaix and Rouen were active. A pronounced depression in the spinning industry prevailed during November and December in the Roubaix district while the weaving mills in most centers were obliged to reduce their working hours.

During the first quarter of the year domestic demand for cotton goods was slow but some improvement was noted in the colonial market. At the beginning of the second quarter a slight improvement took place but was of short duration. However, during August activity in the exports of yarn to Germany aided the spinners considerably. During the remainder of the year the industry continued in a depressed condition. The demand in both the local and foreign markets was slack while the Lille center was required to curtail production of fine twisted yarns.

### German Mills Continued Fully Employed.

In contrast, German mills continued active throughout 1927. Some of the spinning mills were reported to have worked overtime in order to meet the demands of the trade. The volume of orders received for cotton goods and yarns was satisfactory throughout the period under review. During September and October, however, the supply of new orders dropped off slightly on account of competition in foreign countries.

### Reduced Activity in Italian Cotton Industry.

At the beginning of 1927 the Italian Cotton Association agreed to introduce short time and to curtail activity 16 per cent below the normal rate, owing to the depression in the cotton industry. By June most of the mills in the Milan district operated a single shift three days per week. Conditions, however, showed a marked improvement in the second half of the year and in September the mills operated on the highest schedule for any month of

1927. Unemployment decreased and manufacturers evidenced a keen interest in active cooperation to regulate minimum prices.

The cotton goods market during the first half of the year was unfavorably affected by the large accumulation of stocks. During the latter part of the second half of 1927 demand for cotton goods in both the domestic and foreign markets improved and exports, especially to South America, increased.

### Situation in Belgium and Netherlands Good.

The cotton mills in Belgium operated on a satisfactory schedule throughout 1927, and it is reported that in some districts double shifts were required to meet the demand. Sufficient orders were received in the cotton-goods market to maintain this activity.

The situation in the Netherlands was favorable during the entire year and mills were well supplied with orders.

### Polish Mills Busy—Czechoslovak on Overtime—Greek at Capacity.

Although mills in Poland operated on a satisfactory schedule throughout the year uncertain conditions prevailed at times in the industry. During the first quarter the spinning mills worked full time, but 25 per cent of the weaving mills were inactive. In April the larger establishments resumed a two and three shift day. During the greater part of the second half of the year there were indications of marked improvement. During December, however, activity weakened and mills in the Lodz district worked reduced hours.

The cotton goods market was also spotty throughout the period. At the beginning of the first quarter the market for fabrics was slow, although during March and April there was a revival of the demand for that commodity and also for cotton yarn, which extended through May and June. The mills for the remainder of the year were well occupied and business was much better than in the previous months.

Czechoslovak mills operated above normal capacity and conditions gradually improved throughout 1927. Inquiry for cotton cloth was good, although exports showed a tendency to decrease during the last six months on account of the diversion of German orders to mills in Alsace-Lorraine.

The spinning branch of the cotton industry in Greece worked full time practically the entire year and some mills operated above normal capacity. Weaving mills received sufficient orders to keep them busy throughout the year.

### Improvement in Spain—Portuguese Mills Uncertain.

The cotton mills in Spain showed a steady increase in activity throughout the year, although the establishments worked below normal capacity. During January the mills operated at about 65 per cent of capacity and the larger mills went on a full-time schedule in April. A slight curtailment in June resulted from a strike in Barcelona during May, but the situation showed signs of revival for the remainder

(Continued on Page 44)

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We try our best not to be stumped by any traveler demand. Over 7,000 different styles and sizes have been made to meet spinners' demand and usually are in stock.

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Heddles

LAWRENCE, MASS.

## The Physical Properties Of Rayon

(Continued from Page 18)

vious applied tension is reached. In the limiting case, if we pulled the telescope fully out, and then removed the tension, we should be in the position of having a thread composed of only locked cellulose. All the tension up to breaking point would be absorbed in extending the spring tubes, and would be recoverable upon removal of the pull. This again is what happens with artificial silk. Tension converts all the dispersed cellulose to the completely elastic but brittle form.

Let us now leave our telescope to compare the effect of converting the content of dispersed cellulose into the locked form with the normal artificial silk containing approximately 60 per cent dispersed and 40 per cent locked cellulose. In the case of the yarn strained by excessive tension we have a thread brittle, hard, elastic, and strong, while in the unstrained form there is a thread capable of about 20 per cent extension with little elasticity, soft and pliable.

### Bright Pick.

Those who are connected with weaving have often seen a faint bright line across the width of the fabric — commonly called a bright pick. This is frequently due to the introduction of a weft thread which has been strained by tension. The lustre value of any pick in a fabric

depends on the angle of the thread as it passes from the top of one warp thread to the bottom of the next. Such a small half loop acts as a mirror, and uniform lustre from a fabric depends on all the mirrors on each side of each warp end throwing the light back into the eye at a uniform angle. Supposing that one pick is put in tighter than the others, it is obvious that it will strain the warp threads it crosses, and so the half-loops will be at flatter angles than the normal ones. Such a fabric will seem to contain a dark or bright pick, depending on the angle at which the fabric is held to the light. A stiff thread will produce the same effect in a smaller degree, and, as already pointed out, artificial silk containing a high content of locked cellulose, through undue stretching is comparatively stiff.

In knitting there is sometimes a bright ring round the hose, generally at the ankle, where the fabric is stiffened. This may be due to the same cause as the bright pick discussed in connection with weaving.

### Doubling Ends with Silk.

When an end of artificial silk is doubled with real silk, for instance, there is difficulty in preventing the artificial silk from forming loops, particularly if, after doubling, the thread is rewound under heavy tension for knitting or weaving. The explanation is that the combined thread has been stretched beyond the elastic limit of the artificial-silk component; the real silk being more

elastic, recovers its extension, while the artificial silk does so in a smaller degree. The fault can be prevented by specially tensioning the artificial silk to such a degree as will not be exceeded during any subsequent process. If the doubling is done on a combined doubling and twisting machine, this effect is obtained very simply by putting a heavy weight on the tensioning string of the artificial-silk bobbin, and a very light one on that of the real silk.

It has been shown how dispersed cellulose is converted into the locked form. Can the locked form be reconverted back to the dispersed one? It can, simply by wetting. Wet artificial silk is cellulose in its completely dispersed form, and has a very low tensile strength, big extension, and is easily elongated or given permanent stretch. Upon drying, free from tension, the normal state of locked and dispersed cellulose is recovered with a contraction back to the length before it was excessively strained. By noting the length before wetting, and the length after drying, it is possible to tell to what extent it was elongated by excessive tension.

### Bright Picks and Strained Yarn.

Reference has been made to bright picks due to strained yarn; if the fabric undergoes a wet finishing process, the recovery of stretch of the strained picks will accentuate the brightness of the fault. Or, if a number of ends are sized, some of which have been wound under heavy tension (caused perhaps by

entanglement when hank winding), it will be seen that under some conditions some ends will contract in length in drying and result in tight warp ends in the loom. Or, fabric containing such strained yarn will appear passable when sold, but will be very unsightly when washed or wetted through rain.

So much for the effect of tension. What is the effect of friction? Friction reduces the strength of artificial silk just as excessive tension reduces its extension. A very small amount of friction such as is produced by running a thread round a smooth steel rod is quite sufficient to weaken the yarn considerably. Broken filaments are due to friction not excessive tension, and because the individual threads are continuous and not bound together by much twist, masses of loose fibre, called slubs, are easily produced, and may cause much trouble in the final manufacturing process. In processing artificial silk it is a sound principle to reduce the tension and friction on the threads to the absolute minimum. If this principle is applied it will be found that artificial silk is easy to weave, knit, or braid.

### Texas Seeks More Mills

Austin, Texas. — An aggressive drive was launched here at a meeting of the Texas Industrial Committee recently appointed by Gov. Dan Moody, and the Texas State Manufacturers' Association, to bring New England cotton mills to Texas. More

# THE LOOM HARNESS

*of the future for Coarse and Medium Weaves*

THE EMMONS LOOM HARNESS CO., alive to the requirements of the future, has combined in the Non-Slip Mail-Eye Harness the best qualities of the two types of loom harness in general use.

The Non-Slip Mail-Eye Harness is as light and flexible as cotton and as durable as wire.

It adds no excessive weight to the loom, is not affected by sizing agents, causes a minimum of "fly," allows knots to slip through without closing the eye, and decreases the number of loom stoppages.

It is Adapted for Machine Drawing.

## EMMONS LOOM HARNESS COMPANY

1867

Lawrence, Mass.

1928

Southern Representative: George F. Bahan, Charlotte, N. C.



than 200 industrial leaders of the State attended the meeting.

Governor Moody stated that Republican tariff policies and lack of manufacturers was holding the South in bondage to the North and East.

"We sell our raw material at the price which the buyers, the Eastern manufacturers, are willing to pay," said Governor Moody. "When this raw material has been manufactured into the finished product, that product is shipped back to us, not at a price comparable with what we sold the raw material for, but at the seller's price, a price made by tariffs." Texas' avenue of escape from the situation is to make its own finished products from its own raw material, he added.

G. M. Knebel, of San Antonio, president of the Texas Manufacturers' Association stated that the 25 Texas cotton mills handle only 115,000 of the more than 4,000,000 bales produced in Texas annually. But Texas' percentage gain in manufacturing activity leads the nation in the latest figures available, Mr. Knebel stated. The value of manufactured products in Texas for 1925 ran more than \$1,237,000.

Pointing to what he considered a favorable labor situation in Texas, J. Perry Burrus, of Dallas, chairman of the Advisory Council of the Industrial Committee, advocated purchase of used machinery from the Eastern cotton mills to set up in Texas. He said the textile mill operation could be conducted profitably, without doubt in this State.

Treating the financial phase of manufacturing, R. L. Thornton, president of the Mercantile National Bank of Dallas, said it would not be a question of capital in the establishment of new industries, but of organizing them and conducting them efficiently so as to merit the assistance of capital.

### Cotton Bagging Better Than Jute

The superiority of cotton bagging as compared with jute as a covering for American cotton bales has been demonstrated from a physical standpoint by the United States Department of Agriculture in test shipments of cotton to Germany and return to the United States, governmental reports state.

Four weights of cotton bagging designed by technologists in the division of cotton marketing and woven in the co-operative testing laboratories at Clemson College, South Carolina, and North Carolina State College were used in the tests. The lightest weight cotton bagging compared very favorably with jute. A representative of the department reported from Hamburg that "the bales covered with cotton bagging were much neater and in better condition generally than those covered with jute bagging."

Breaking strength tests were also made of the cotton bagging, the report continues, and these tests, together with the shipping test, indicate, says the department in a report on the experiments, that "from the viewpoint of durability, protection to the cotton and neatness cotton bagging is a more suitable covering

for the American cotton bale than is jute."

After the return of the cotton-covered bales which were shipped to Germany more than 400 pounds of the cotton bagging was stripped from the bales and garnetted to determine the approximate reuse value of such bagging. The value assigned to this garnetted cotton bagging waste by a large waste concern on January 25, 1928, was 10 to 12 cents per pound.

The report states that fiber salvaged from used cotton bagging may be re-used either alone or when mixed with other low-grade cottons in the manufacture of cotton bagging, osnaburg or other coarse fabrics or articles usually made of low-grade cotton and waste. The loss in garnetting was estimated to be less than 2 per cent.

Summarizing the results of the study, the department says:

"Cotton bagging may be manufactured from the lowest grades and staple lengths of cotton produced in the United States and can be manufactured from high-grade waste.

"Cotton bagging as manufactured at present makes a very suitable covering for cotton bales. It is reasonable to suppose that a better method of spinning yarns and weaving the cotton bagging fabric may be developed by experimentation and the cost of production consequently lowered.

"Ordinarily cotton bagging costs more than jute bagging, but in 1926 it was cheaper because the demand for cotton was weak and that for jute was strong. Adoption of cotton bagging would probably force the price of jute to unusually low levels. Decided economies in transportation and insurance costs would also result from the use of a lighter weight bagging.

"A strong, light weight cotton bagging of standard construction and weight would tend to obviate the disagreeable and costly practice of challenging and taring American cotton in spinners' markets at home and abroad.

"Cotton lint does not adhere to cotton bagging so tenaciously as it does to jute bagging. The lightest weight of cotton bagging thus far tested is superior to two-pound jute bagging and to the burlap covering commonly used on the Egyptian bale, which has the reputation of being the most attractive covering now entering the world's markets."

### Hollow Magnet Shows Double Energy

Berlin, Germany. — Hollow magnets develop double the energy of full ones, is the astounding discovery of the Berlin civil engineer, Josef Zacher, who claims that his invention is bound to revolutionize the fundamental principles of magnetic-electrical science.

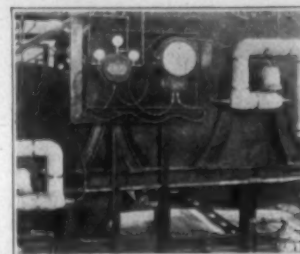
Zacher submitted his discovery for a test at the Reich Physical Institute and weeks of laborious research and experiments proved the truth of his claims.

Zacher's discovery comes as a relief for the electrical industries for it was found impossible to improve magnets by making them out of better metal.

## Tycos Automatic Control on Drying Cylinders

WITH the Tycos System of differential temperature control, the yarn is dried

less on the large cylinder than where the same pressure system is used for both cylinders. The smaller cylinder, at a higher



Tycos Recorder and Regulator on Drying Cylinders.

temperature, removes the remaining moisture without rupturing the surface coat. This does away with any roughness and decreases shedding. The small cylinder seals the surface coat and produces a smooth and uniformly tough coat with the proper amount of moisture occluded in the yarn itself, all of which is necessary for economic loom production.

Send for Illustrated booklet, "Blazing the Way to Slasher Room Profits," and Tycos Catalog for Textile Mills.

**Taylor Instrument Companies**

ROCHESTER, N. Y., U. S. A.

CANADIAN PLANT MANUFACTURING DISTRIBUTORS  
TYCOS BUILDING IN GREAT BRITAIN  
TORONTO SHORT & MASON, LTD.,  
LONDON

## PRINTING?

### RULED FORMS?

GET OUR QUOTATIONS

#### LETTER HEADS

on any quality of paper and envelopes to match

BILL HEADS FACTORY FORMS  
STATEMENTS INVOICES  
PAY ROLL ENVELOPES

{Let us LITHOGRAPH your Letter Head

#### LOOSE LEAF SYSTEMS and BINDERS

Ledgers, Journals, Cashbooks and Day Books

MANY MILL FORMS CARRIED IN STOCK

## WASHBURN PRINTING CO.

DAVID CLARK, President

18 WEST FOURTH ST. Phone 342 CHARLOTTE, N. C.

You Receive Seventeen (17) Years of Practical Printing Experience

## Better Lubrication at *Less Cost* per month

### A Simple Remedy for Oil Spots on Goods

is to Use



MODERN TEXTILE LUBRICANT

that stays off goods because it stays in the bearings—(our exclusive process).

—and not only are goods saved from spotting but lessened bearing wear naturally results from long life per application—and naturally where so much less lubricant is used the cost is much less.

Let us tell you about the advantages of NON-FLUID OIL. Write for testing sample and bulletin, "Lubrication of Textile Machinery."

Southern Agent: Lewis W. Thomason, Charlotte, N. C.

**NEW YORK & NEW JERSEY LUBRICANT CO.**  
MAIN OFFICE: 292 MADISON AVENUE, NEW YORK, N.Y.

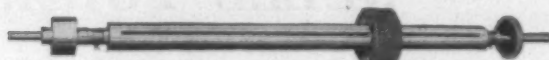
Warehouses:

CHICAGO, ILL.	PROVIDENCE, R.I.	ATLANTA, GA.
ST. LOUIS, MO.	PHILADELPHIA, PA.	CHARLOTTE, N.C.
NEW ORLEANS, LA.	PITTSBURGH, PA.	GREENVILLE, S.C.

**B. S. Roy & Son Co.**

ESTABLISHED 1868

**Textile Grinding Machinery**  
Worcester, Mass., U.S.A.



Roy Traverse Cotton Card Grinder



Roy Roller Cotton Card Grinder

## An Accepted Standard

with the backing of sixty years' continuous experience in the design and manufacture of card grinders.

Detailed information will be gladly sent to you upon request

In 1868 B. S. Roy invented the traverse grinder which completely revolutionized card grinding. In the sixty years that have followed ROY GRINDERS have been specified for accuracy and long life under hard usage.



ROY GRINDERS are  
Standard Equipment  
in Textile Mills  
Everywhere

## Advertising And The Maintenance of Prosperity

(Continued from Page 9)

has had to bear the unjust odium of marketing's shortcomings. The logical markets may have been wrongly appraised. Distribution was attempted under conditions that made the cost prohibitive. Difference in buying habits, according to fields or industries, have been overlooked. Appeals to buyers have not been valid. Distribution channels have not been effectively organized. The sales force has been inadequate, ineffective or mishandled. Yet of advertising is expected the impossible delivery of economical distribution.

It is to the credit of many advertising men that they have been among the leaders in the adoption of modern marketing methods and that, in large number, they are competent counselors on marketing plans.

We, therefore, have a grave responsibility towards those to whom we offer advertising counsel. Effective advertising must be reared on two sturdy foundations; the first, a product or service which meets existent or unexpressed needs of the market; the second, a waste-free marketing plan for reaching responsible buyers.

But sound advertising is a remedy for faltering business not alone in spurring the profitable filling of buyer's present wants. We have come to see that the very development of our social structure depends upon the rapid enlargement of needs and the introduction of new products.

Through the adoption of production economies, principally the greater use of power and the fruits of research, established industries constantly reduce the numbers of their employees per unit of product. The surplus workers thus thrown off by older industries must be absorbed into new ones, otherwise we shall have widespread unemployment, lowered standards of living, suffering, discontent. It is the role of consumer advertising quickly to introduce new products to a mass market, and thus create new demands for surplus labor. The automobile, the motion picture, rayon and a score of like products could not have been made servants of our common life so quickly had it not been for the penetration of advertising into every nook and corner of this country and through every purchasing level.

Advertising's place in such development of new products is clear. What would be the price situation in the shoe, the furniture, the carpet, and other staple industries if they were trying to employ the men and money which have gone into the automobile, rayon and motion picture businesses? New enterprises absorb surplus labor, create new purchasing power, stimulate consumer ambitions, render business profitable and make for social well-being. Advertising is the loud speaker for development.

In thus adapting advertising to its destined sphere of usefulness, we of the business press have endeavored to do our share. The consumer me-

dium creates consumer demand and directs the consumer to the dealer. Our function is to move goods from industry to industry, and from maker to distributor. To no small degree, industry's profits are measured by economies in those many inter-industry and inter-merchant movements which lie back of the final sale.

The very essence of the business press is an intimate relationship with and understanding of the industry or trade served. The significance of its editorial counsel finds reflection in the use of its advertising pages. Over inter-industry transactions, the industrial paper throws an effective net, tapping in for every industry on its supply channels, and affording the supplier a direct contact with his market. The buyer uses the industrial paper as a tool of operation, making it the channel through which he selects the materials and equipment for the efficient manufacture of his product.

It is evident, therefore, that the industrial division of the business press has an important beneficial effect on the profit margin. Its reading pages are a text book of economy in manufacture; its advertising pages, a textbook of equipment for doing jobs at lower cost. Through reading and advertising pages, then, it conducts to the lowering of producers' costs on consumers' products. Thus it tends to widen the profit margin. At the same time, through production economies, it gives the public continually greater values.

In its trade division, the business press is friend and counselor of distributor and dealer. It is a powerful instrument in developing producer-distribution relationships that smooth the flow of goods to the public. It transmits evidences of sustained demand, introduces new products quickly, demonstrates the power of quality. Through the trade paper is established a community of interest between manufacturer, distributor and dealer. They become co-operating elements by which consumer wants are filled with desired merchandise of known quality, with prices reflecting speedy turnover.

That the advertising world is fully aware of the importance of the business paper in serving industry, trade and the public, as an ally of the consumer medium, is indicated by the award of this medal, this high honor, to a business paper publisher tonight.

We can look with great hope on advertising's promise for the maintenance of prosperity. Advertising has an important role in widening the profit margin in both industrial and consumer transactions. It removes products from unhealthy price competition, as fast as it can unearth distinctiveness in products and organizations. It reduces production costs by insistence, in the planning of campaigns, on conformity of goods to needs, and on standardization and simplification. It reduces distribution costs by challenging unsound marketing programs.

Proven an effective instrument in marketing specialties, advertising is



now entering the even larger arena where staples are battling before a price-obsessed public. It offers new weapons of quality and service in business' struggle with meagre profits.

Proven the stimulant of new public wants, advertising holds out enticing incentive to ever-faster introduction of new products, thus absorbing surplus labor and stimulating purchasing power.

In all this, advertising works for the public as well as for the advertiser. It helps stabilize industry, and thus employment and dividends. It emphasizes quality and use, which with price, are sounder criteria of value than price alone. It assures, through price stabilization, the continued improvement of product and the development of new products to minister to the consumers' needs.

For myself and my colleagues in business paper advertising, I pledge you our best endeavors in a continuance of study, research and experiment, to correct misapplication of advertising, to make it a still more effective tool of business, and a still more beneficent agent in advancing the public welfare.

### The Trend Of American Industry

(Continued from Page 20)

American industry, an exorbitant tariff, like unto a boom, has its disastrous reactions.

Let us assert our rights as directors of the keystone of American prosperity and insist that the laws be modified so as to prevent further governmental interference in business.

Let us stop and consider whether or not laws which were desirable for yesterday are desirable for today and if we find that they are not, work for their repeal.

Let us above everything stop the everlasting scattering of our energies by joining everything and anything that some promoter or enthusiastic individual presents to us. Let us remember that we can do our country most good by concentrating on our industries.

Remember there have never been complaints of hard times when the wheels of American industry have been turning normally.

To get them to turning normally is therefore the best end to which we can apply our efforts.

This means that we must study the economies of industry, for we must remember that the industrialists of other countries are studying economies as never before. We must not confuse the convenience or nicety of doing a thing with the economy of doing it.

Business must be continued with public service as its objective rather than personal profit. Not but that profit is necessary to success, but the public never tire of being served well and rapidly tire of being made the objects of profit.

There are those who want a tariff to protect them against their own extravagances and incompetencies and such a tariff is injurious to all industry. How to prevent the tariff being mutilated once more by sectional politics is something we doubt if anyone has yet discovered.

American industry needs stabilization—meaning steady running. This running overtime three months in the year and having a total shut-down three months, is one of the greatest of extravagances.

Overproduction is as much an evil today as ever and if we are to avoid further evil from this cause we must learn to resist the temptation to increase the size of the plant every time we find we are running to capacity with unfilled orders. Let us learn to turn down a few orders now and then.

No man is ever a merchant until he can learn to lose business.

Let us, above everything, learn to "live and let live." This American habit of cutting prices in order to keep running full, when business conditions are dull, may succeed temporarily, but it is murderous to the business as a whole and eventually does more harm than good. The price cutter eventually cuts more than the price—he cuts himself.

Let us know when we are licked. In other words, if our products are out of style, old-fashioned, back numbers and not saleable to modern buyers, let us withdraw them gracefully and go to making something else.

To bring about the conditions necessary to the future prosperity of American industry, therefore, there must be co-operation and concentration of purpose. This means there must be proper organization. Not organization merely in groups of the same industries, but as industries unclassified. Let the groups take care of their group problems and let the central organization concentrate on those things which industry requires as a whole, and this will reduce the number of objective points and make success easier and quicker.

American industry will not monopolize the industry of the world; it will be fortunate if it obtains its share and no more, but to obtain its share it will have to do more than is being done at the present time.

We make this statement, being fully aware that there are already enough organizations in the United States to take care of the welfare of the industries of the world. But what is wanted is organization that will do it, rather those who are able and don't.

### Line Start Induction Motors

A line of squirrel cage induction motors suitable for starting on full line voltage is being placed on the market by Allis-Chalmers Manufacturing Company. These motors are normal torque, which reactance machines and will not draw starting current in excess of the limits recommended by the electrical apparatus committee of the National Electric Light Association. They are built in ratings 7½ to 30 H. P., 600 to 3600 R. P. M., low voltage, and are available with either sleeve or roller bearings. All superior features of Allis-Chalmers construction as employed in squirrel cage motors are maintained in this new line. A magnetic switch with push button control is the only starting equipment required.

## Mills That Are Using

# D & M Special Tallow

are impressed with the uniform sizing of their warps. The result, of course, is

### Better Weaving

*We Also Manufacture*

## D & M Finishing Paste Extra

For Ginghams, Chambrays, Etc.

### Special Materials

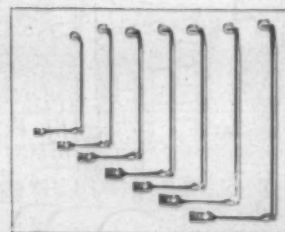
For Rayon Filled Goods or Goods That Are Part Rayon

## D & M Company

Office and Plant:

Charlotte, N. C.

## IN FRONT



The penalties of leadership are often as great as the prizes—to stay out in front requires a measure of merit beyond dispute.

S. S. & F. Co. has been awarded this position by the common consent of the greatest number of investors in its SERVICE—the Textile Mills of the Country.

*"Quality Features Built-in,  
Not Talked-in"*

## Southern Spindle & Flyer Co., Inc.

CHARLOTTE, N. C.

*Manufacturers, Overhauled, and Repairers of Cotton Mill Machinery*

W. H. MONTY,  
Pres. and Treas.

W. H. HUTCHINS,  
V.-Pres. and Sec.

## Cotton Uniforms For Mill Workers

MRS. KATHRYN McMURRAY, manager of the "College Maid" department of Maryville (Tenn.) College, was in Charlotte recently in conference with one or more cotton mill executives with a view to interesting them in the adoption of the uniforms becoming so generally used by cotton mill operatives.

In discussing her work, Mrs. McMurray sought to make it clear that all of the uniforms manufactured in the "College Maid" department of Maryville College are the handiwork of young women who entered the institution without sufficient funds for their expenses and that this department of hers provides the necessary employment and income which enables these girls to get a college education, Mrs. McMurray said:

"Many of the mills do not make the wearing of a uniform compulsory, although they are most anxious for it. They feel the girls must be made to want it and not made to wear it. In accordance with this thought the manager or forelady of each department is sold on the idea of a uniform—she presents it to her girls and either chooses a committee or has them choose one to work with like committee from other departments. These together work out a color scheme for the whole mill. When the choosing of colors is left to all the girls it is almost impossible to get them to agree, for some 'just won't wear rose,' 'look like a black woman in lavender,' and 'never did

like blue.' But when the color is already decided by their committee all dissention is of no avail. The fact is that the long white collar brings the color so far from the face that no color is particularly unbecoming to anyone. Uniform white stockings and white head bands may or may not be worn.

"Usually, not more than a third of the girls want a uniform when the first order is sent—but when that order is filled and they see how pleasing and satisfactory the uniforms are, a second third will order and the rest will fall into line a few at a time.

"After enough girls have decided they want the uniform the manager of the mill appoints some one in each department to measure the girls and take their orders. He then buys at wholesale rates, giving the girls the uniform at the same price, plus transportation charges. Each mill works out some plan whereby payment can be made in three or four weekly installments—some taking the proper amount out of the weekly payroll, others holding the head of each department responsible for collecting it from the girls each week. One girl recently remarked that her uniform seemed like a gift since a little was taken from the payroll each week and she hardly missed it.

"The uniforms are made in all the standard sizes; each size being made in three lengths—short, 39 inches; medium, 42 inches; tall, 46 inches. A four-inch hem allows for any extra length needed.

"The average number ordered is three—a few ordering only two, many ordering four and some as many as six. If white is used one is needed for each day. The initial cost may seem a little large to some girls but four uniforms of Indian Head will probably last a year even if worn every day. Long sleeves or short may be used, the former costing ten cents above regular price.

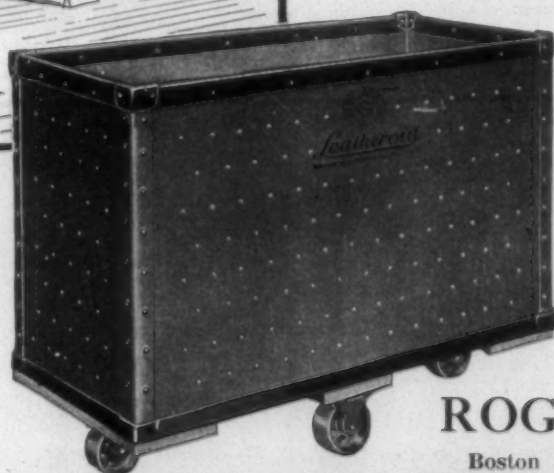
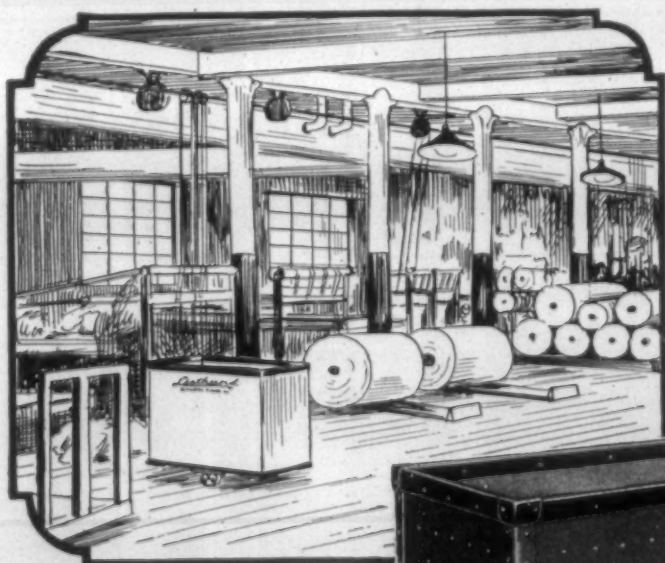
### Girls Look Better.

"If the girls knew how much better they would look in uniform they would not be contented until they had them. A professor of sociology in a Southern college, after visiting a mill where only two departments had uniforms, remarked: 'I notice it is the better class of girls who wear the uniform.' But that is not true. The fact is the girls who wear them look better.

"It is an interesting fact that the failure of some cotton crops in the spring of 1924 is making this low priced uniform—without the middleman's profit—available for the mill girls today. That spring ten different girls studying in Maryville College, Maryville, Tenn., told their home economics teacher they could not return to college in the fall because their dad's cotton crop had failed, and they could not find work to pay their board. She told them she would find work before school opened in the fall. When nothing could be found a tiny factory—The College Maid Shop—was started. Here these ten girls, plus 103 more who were not expected, earned part or all of their college expenses.

Each year more girls have been accommodated until last year 293 girls earned from a small amount needed for clothes to enough to pay all of their college expenses. Their output—crepe pajamas embroidered in wool—is sold in the cities on one store in each city only. With no salesman it has sometimes been a problem to secure market enough; but when a store buys once, their reorders are assured for their customers enjoy buying and wearing a garment which not only gives good value but which has been made by some girl earning her way through college.

"When the Holston Mills at Knoxville was considering uniforms for their girls last spring, they wrote The College Maid Shop for samples. Nothing suitable was on hand but the idea of uniforms for the mill girls of the South registered. Why shouldn't these college maids make something which would help another group of girls? They themselves were born stretching a dime to do the work of a dollar, and if while earning their college education they can help other girls in like circumstances stretch their dimes they will be most happy. This summer uniforms have been made by college maids for many mills and orders are on hand for hundreds more. If the idea of a uniform is as attractive to mills elsewhere as it is to those around Knoxville, the making of them will provide work enough to make a college education possible for every girl who has the courage to work for it.



# Leatheroid

Solid substantial and lasting, because of a combination of material and construction which has been developed out of nearly half a century of receptacle building experience.

The name Leatheroid covers a complete line of all types of receptacles used in factories, mills, warehouses, etc., for transporting and storing raw materials, parts, cuttings, scraps and waste.

Warehouse Cars

Roving Cans

Boxes

Barrels

Etc.

## ROGERS FIBRE COMPANY

Boston New York Philadelphia Charlotte, N. C.  
210 Lincoln St., 78 Fifth Ave. 1024 Filbert St. 22 West Fifth St.,

Sold through Southern Supply Houses



## Uses of Cotton in Clothing and Household Articles

(Continued from Page 14)

Pocketbook linings	Broom covers
Ribbons	Butter cloths
Ruchings	Button bags
Sashes	Canopytops
Scarfs	Card table covers
Shields	Carpets
Tapes	Cases for silver
Thread	Chair covers
Ties	Cheese cloths
Umbrellas	Clothes lines
Umbrella cords	Clothes pin bags
Vells	Comforters
Clothing for Men and Boys	Cotton batting
Outer Garments	Couch covers
Blazers	Desk sets—artificial leather
Blouses	Dish cloths
Coats (extra)	Dollies
Coveralls	Door hangings
Dusters	Dress covers
Hospital uniforms	Dress form covers
Jumpers	Dresser scarfs
Knickers	Dust cloths
Linings and interlinings in coats	Dusters
Mackinaws	Electric light cords
Mufflers	Emery bags
Professional gowns	Face towels
Overalls	Favors
Overcoats	Flags
Raincoats	Furniture covers
Rain capes	Garden hose
Shirts	Golf bags
Smoking jackets	Gress bags for lawn mowers
Suits	Hammocks
Suits for athletic uses	Hot dish pads
Sweaters	Hot dish holders
Trousers (extra)	Hot water bottle covers
Top coats	Jelly bags
Vests	Key cases
Work aprons	Knitting bags
Work jackets	Lamp shades
Headwear	Laundry bags
Caps	Linoleum
Ear muffs	Lunch cloths
Hats	Market bags
Hat bands	Mats
Hat cords	Mattresses
Lining in hats	Mattress pads
Night caps	Mattress protectors
Stocking caps	Medical gauze
Tams	Mops
Undergarments	Mosquito netting
Bathrobes	Musical instrument case linings
Drawers	Oil cloth
Dressing gowns	Pastry bags
Nightshirts	Pattern pockets for doors, closets, etc.
Pajamas	Picture canvas
Shirts	Pillow shams
Union suits	Pillow slips
Vests	Pillow ticking
Woven combination suits	Pin cushions
Footwear	Quilts
Bedroom slippers	Rugs
Bed socks	Rug cushions
Canvas shoes	Screens
Felts	Scrub cloths
Galoshes	Sewing bags
Hose	Sheets
Leggings	Shoe bags
Linings in shoes, boots, and rubbers	Shower curtains
Shoe laces	Shoe polish cloths
Spats	Side board sets
Accessories	Slip covers
Arm bands	Sofa pillows
Belts	Suitcase linings
Collars	Table cloths
Cuffs	Table felts or pads
Garters	Table napkins
Gloves	Table runners
Handkerchiefs	Table scarfs
Mittens	Tape measures
Name tapes	Tea cozies
Suspenders	Tea bags
Ties	Theard
Umbrellas	Toilet traveling cases—covers
Umbrella cords	Toilet traveling cases—covers and lin-
Umbrella covers	ings
Household Uses	Toweling
Artificial flowers	Toys
Artificial fruit	Traveling bag covers
Awnings	Trunk linings
Baby carriage linings	Twine
Bandage cloths	Upholstery
Baskets	Vacuum cleaner bags
Bath mats	Vegetable bags
Bath rugs	Wall brushes
Bath sheets	Wall coverings
Bath towels	Wall hangings
Bed spreads	Wash cloths
Blankets	Window hangings
Book bindings	Window shades
Book covers	Window ventilators

## Tubize on the Air

Remarkable results have been obtained by the Tubize Royal Hawaiians in their monthly broadcasting hour. The orchestra, which is composed of employees of the Tubize Artificial Silk Company of America, received one hundred and eighty-two telegrams after its last appearance. The messages came from twenty-two States and three Provinces of Canada.

The orchestra broadcasts on the third Thursday of every month from DRVA, Edgeworth Radio Sta-

tion in Richmond, Va. They are very well known locally and in addition to their regular radio appearances have often made personal appearances in their territory. On their last appearance at the Mosque Theatre of Acca Temple in Richmond, the largest theatre in the South they received an ovation and were judged the most popular act of the program.

The personnel of the organization is entirely recruited from employees of the Tubize Artificial Silk Company of America at its Hopewell, Va., plant.

## SUPERINTENDENTS AND OVERSEERS

We wish to obtain a complete list of the superintendents and overseers of every cotton mill in the South. Please fill in the enclosed blank and send it to us.

..... 192.....

Name of Mill.....

Town.....

..... Spinning Spindle ..... Looms

..... Superintendent

..... Carder

..... Spinner

..... Weaver

..... Cloth Room

..... Dyer

..... Master Mechanic

Recent changes.....



# Greatly Reduced Fares

## IT COSTS LESS

# TRAVEL BY TRAIN

## THE SAFEST

## THE MOST COMFORTABLE

## THE MOST RELIABLE

Tickets sold daily		
<b>Round trip tickets, between stations distance 150 miles or less — —</b>	<b>Limit 1 day from date sale</b>	<b>One and a third (1 and 1/3) fare for round trip only 2.4c a mile</b>
<b>Round trip tickets, between stations distance 150 miles or less — —</b>	<b>Limit 2 days from date sale</b>	<b>One and a half (1 and 1/2) fare for round trip only 2.7c a mile</b>

GOOD IN PARLOR AND SLEEPING CARS

<b>Newest and most economical ticket ever offered — — — —</b> <b>The 10-trip ticket — —</b> <b>The 20-trip ticket — —</b> <b>The 30-trip ticket — —</b>	<b>Between any two stations on Southern Railway System for period 6 months.</b> <b>Good for individual purchaser and between stations distance 200 miles or less.</b> <table style="width: 100%; font-size: x-small;"> <tr> <td style="width: 80%;">The 10-trip ticket . . . . .</td> <td style="width: 20%; text-align: right;">2 1/2c</td> </tr> <tr> <td>The 20-trip ticket . . . . .</td> <td style="text-align: right;">2c</td> </tr> <tr> <td>The 30-trip ticket . . . . .</td> <td style="text-align: right;">1.9c</td> </tr> </table> <p style="text-align: center; font-size: x-small;">GOOD IN COACHES ONLY</p>	The 10-trip ticket . . . . .	2 1/2c	The 20-trip ticket . . . . .	2c	The 30-trip ticket . . . . .	1.9c
The 10-trip ticket . . . . .	2 1/2c						
The 20-trip ticket . . . . .	2c						
The 30-trip ticket . . . . .	1.9c						

For further information see any Southern Railway System Ticket Agent or WRITE

E. N. AIKEN, General Passenger Agent, Washington, D. C.

# SOUTHERN RAILWAY SYSTEM

### Save in freight by using W I L T S

#### Veneer Packing Cases

They are lighter and stronger, made of perfect 3-ply Veneer Packing Case Shooks. A saving of 20 to 80 pounds in freight on every shipment because of extreme lightness. Stronger than inch boards, burglarproof, waterproof and clean. Write for prices and samples. Convincing prices—Quick service. Wilts Veneer Co., Richmond, Va.

### Sullivan Hardware Co.

Anderson, S. C.

#### Mill Supplies

All Orders Given Prompt and Careful Attention

### WELL DRILLING AND DEEP WELL PUMPS

We do the engineering, and have had 32 years experience solving water problems satisfactorily for textile mills.

SYDNOR PUMP & WELL Co., Inc.  
Richmond, Va.

## STANDARD HOT FORGED LOOM BOLTS

Are Manufactured Especially for  
**Textile Machinery**

They will outwear common bolts, which means fewer breakdowns and

#### Lower Costs

**Standard Nut & Bolt Co.**  
Valley Falls, R. I.

### Popular Winter Resorts

Delightful winter climate, green golf courses, and fishing and excellent hotels, Ocean Springs, Biloxi, Edgewater Park, Gulfport, Pass Christian, Bay St. Louis in Lower Mississippi and New Orleans, La., on the coast of the Gulf of Mexico.

Excellent train service without change. Crescent Limited—Piedmont Limited—New Orleans Express.

### Southern Railway System

City Ticket Office,  
237 West Trade Street,  
Telephone Hemlock 20.

W. F. Cochrane,  
City Ticket Agent  
R. H. Graham,  
Division Passenger Agent  
Charlotte, N. C.

## Exports of American Cotton And The World Cotton Industry

(Continued from Page 37)

of the year. The cotton goods market gradually improved during the 12 months.

The mills in Portugal worked on an unsatisfactory schedule practically throughout the year and the factories were busy in filling orders only for immediate needs.

### Swiss Industry Satisfactory—Hungarian and Yugoslav Active.

The cotton industry in Switzerland during 1927 was in a satisfactory condition on the whole, although not without difficulties, especially in the mills producing coarse goods.

The spinning and weaving mills in Hungary worked full time during the first six months of the year, and activity increased still further in August and September. Exports and domestic consumption of cotton goods also were considered favorable.

### 3—Exports of American cotton and

The cotton establishments in Yugoslavia operated full time during August and the mills had a sufficient supply of orders which kept them busy for the remaining months. Construction of new mills was necessary in order to meet local demands.

### Conditions in Austria, Estonia, and Sweden.

Mills in Austria gradually increased their operations from about 75 per cent of capacity in January, 1927, to 87 per cent in July, but activity declined to about 83 per cent in November. During April and May a good supply of orders was received. Demand, however, declined during the remainder of the year. During the first six months of 1927, Estonia mills operated on an unfavorable schedule and no signs of revival were apparent at the end of the year.

The Swedish cotton industry was well engaged during the first half of 1927 and activity increased still further during the latter part of the year.

### Russian Mill Production Larger—Danish Industry Depressed.

The production of cotton yarn in Russian mills increased gradually during the first half of 1927 but declined in July, primarily because of the exodus of operatives to harvest the crops—an annual occurrence. The output, which amounted to 21,400 metric tons (metric ton=2,204.6 pounds) in January, was reduced to 16,700 in July, increased to 25,800 in September, but again decreased somewhat in December.

Activity in the weaving mills practically paralleled that of the spinning branch and production reached the peak of the year in September, when the output of cloth amounted to 224,200,000 meters—a substantial increase compared with 195,800,000 meters (meter=1.0936 yards) woven in January.

Conditions in the Danish cotton manufacturing industry continued unsatisfactory throughout 1927.

The Japanese cotton manufacturing industry recorded fluctuations in mill activity during 1927. Production of both cloth and yarn was at a comparatively high rate during the first four months of the year. Owing to adverse factors in the home and export markets, the mills belonging to the Japan Cotton Spinners' Association agreed to curtail production 15 per cent beginning May 1. Mills generally adhered to this schedule, and on November 15 a further restriction of the output to 81 per cent of normal capacity for six months was accepted. Domestic consumption of textiles during 1927 was unsatisfactory, and exports of yarn declined from about 13,000 bales (400 pounds each) in January and February to 4,000 in December. Exports of cotton piece goods, however, increased from 870,499,000 yards during the first 11 months of 1926 to 89,786,000 for the corresponding period of 1927.

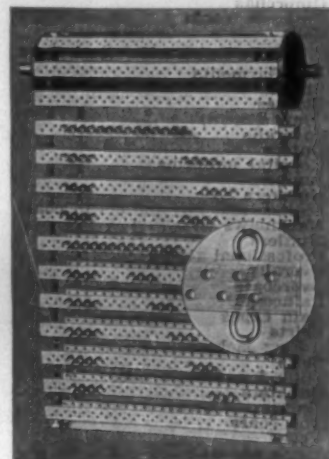
## Finds Accidents Increasing in 90% of Factories

While a few thousand manufacturers are doing an enormous amount of safety work, more than ninety per cent of American employers are doing practically nothing to prevent accidents, which are having a rather startling progressive increase, avers Ethelbert Stewart, United States Commissioner of Labor Statistics, in a statement just made public by the National Council. Too many employers have settled down to a smug reliance on the operation of workmen's compensation laws, which aren't solving the safety problem, declares Commissioner Stewart.

The question that hasn't been solved is what shall be done in cases of extra-hazardous industries and small establishments, which the insurance companies refuse to insure and which are not able to qualify as selfinsurers and which are too widely scattered and too unorganized to form mutual insurance organizations. Thus, although it is the general belief that workmen are protected, as a matter of fact, injured employees in some States are thrown upon public charity, just as they were before the enactment of the compensation laws, despite the fact that the cost of the insurance, which society is supposed to have, has been charged into the price of the commodities produced and is being paid by the consuming public, states Mr. Stewart. This is more or less true in all States not having some sort of State fund. A large number of States report that the situation as regards workmen's compensation insurance for small plants is steadily growing worse.

It is too early in the development of these menacing conditions to discuss dogmatically any scheme for their solution, but these clouds on the horizon, which at first blush may seem to be no bigger than a man's hand, are in fact shaping themselves into very definite outlines and it is important that business interests of the nation should see the outline of the conflict and should begin to think about wise methods of solution, believes the commissioner.

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## Has Industry a Soul?

(Continued on Page 12)

put them into operation in their relation to their fellow man.

Many of the most active churchmen in the South today are cotton mill men. They do not deny the plan of salvation as laid down in the bible. They do not reject its teachings. They do not align themselves with radicals or even people whose Americanism is questionable. They do not assume the role of experts on all matters. They study their industry and plan for its progressive growth in the interest of all.

These new movements do not alarm. They are only blatant bickerings of an over-developed ego. In the meantime the great textile industry will go on its way honestly and seriously endeavoring to do the best it can for all concerned.

## Fuller E. Callaway

A great industrialist, a great Georgian, a great man has passed in the death of Fuller E. Callaway, of LaGrange. The part he has borne in the commonwealth's material history during the last quarter of a century or more has been that of a master builder. His manufacturing, mercantile and banking concerns were among the foremost in the South and, largely, were a product of his own enterprising genius. He saw far and deep into the new opportunities that were opening for this region in the early nineties, saw the basic relationships of its agriculture and industry, the practical values of its climate, its widening appeal to investors and home-seekers, its destined power in the larger life of America. Not only did he see, but with a vigor of execution that matched his high imagination, he translated dreams into deeds, and hastened the coming of a new era in the prosperity of his State.

But Fuller E. Callaway was greatest not as a captain of industry, master though he was in that realm, but as a citizen and a humanitarian. His chief thought was for the common weal. He served Georgia with distinction as a member of the public service commission at a time when the problems of that body were peculiarly urgent and difficult; and in various capacities he gave of his rare talents for the general good. Office holding, however, was not to his taste. He preferred to work with the rank and file for the State's betterment and to exert his influence to that end through creative enterprises that would broaden the opportunity and prosper the lot of the common man.

And it was the man rather than the project that most concerned him. Once asked by a stranger, "What do you do at LaGrange?" Mr. Callaway replied, "Why, we make American citizens and run cotton mills to pay expenses." Such was the inner guidance of his career, such the unseen but eternal strength of his spirit. Of the nine thousand persons employed in the divers concerns of which he was head, not one but looked upon him as a friend, and to each of them his good will went forth unceasingly. He saw to

it that their living conditions were not only wholesome and cheerful, but also were provided with things needful for the enrichment of the mind and the growth and saving of the soul. America honored him, the South loved him, Georgia held him, and will ever hold, in that high place of her heart reserved for those she deems noble. — Atlanta Journal.

## Space for Textile Exposition Almost All Taken

Announcement is made from the office of the Southern Textile Exposition at Greenville that the work of allotting space to the exhibitors has been practically completed. Many contracts have been signed during the past few weeks and the remainder will go out in a few days. The problem of quartering the most complete line of textile machinery ever shown has been difficult, and has required much time. Some of the exhibitors will be found in parts of the building where they have not been seen before. A splendid spirit of co-operation with the management is acknowledged.

The new steel annex is an handsome building. It stand practically where it was at the last exposition, except that it has been moved forty-eight feet further north. A concrete floor has been added and two additional doors. One of these doors is in the east side of the building leading to a walkway twelve feet wide extending to Academy street. At this door a ticket office and doorkeeper will be installed, thus bringing in a number of visitors through the annex. This will be a great convenience, as extensive parking facilities are provided on the streets adjacent to this new entrance. The Washington street door will continue as the main entrance.

To the south of the annex and extending nearly to Washington street there will be erected a two-story temporary addition designed so that it has the effect of being part of the main building. This will be occupied by some of the leading exhibitors. At the east end of this addition will be located a refreshment bar where sandwiches, cakes and similar foods, hot beverages and bottled drinks will be served.

The 8th Southern Textile Exposition will open on October 15th. Committees are now being appointed to handle the various features of the program. Principal among these is the entertainment of the Southern Textile Association which will hold its full fall convention on Friday, October 19th, in the ballroom of the Poinsett Hotel.

Reservations for rooms will be handled this year by a special committee, as usual. Further announcements will be made on this point. The entire eleventh floor of the Poinsett Hotel has been reserved by W. G. Sirrine, president, for mill executives who may visit the show. All during the week a special clerk will be on duty at the hotel to handle the rooms on this floor, thus assuring the heads of cotton textile plants who have secured reservations the certainty of being accommodated.



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## Methods of Starting Squirrel Cage Induction And Synchronous Motors

(Continued from Page 10)

cage motors is well established and increasing.

Where this method has been used, maintenance costs are low and no difficulty is experienced if proper application practices are followed. For belted loads ample sized pulleys and belts, of course, are essential. Direct connected drives offer no particular problems except with machines or devices which might be injured by the sudden application of a high starting torque. Chain or gear driven machines may have enough slack in the various parts to make a different method of starting desirable.

Mention has been made of the effect of the maximum torque on the driven machine during acceleration. In the general application field this does not appear to be a serious factor. The driven machinery is practically always designed to stand some overload and the motor is selected with this in view. If designed for overloads that the motor can stand, it appears that the driven machine has ample strength to withstand the maximum torque of the motor applied gradually during acceleration.

Paralleling the advent of magnetic control devices was the development of the newer squirrel cage motors, designed for full voltage starting, which have previously been mentioned as "high-reactance" machines. One of the chief aims in the design of these motors was to reduce the starting current to roughly 70 per cent of that of the ordinary squirrel cage motor.

The curves I have made will give an indication of how these various induction motors compare in current and torque characteristics. The first set of curves shows the current plotted against speed. The highest current is, of course, taken by the ordinary squirrel cage motor. The high resistance rotor machine is usually designed with a lower starting current. The current taken at start-in by the normal torque machine and the high starting torque motor is approximately that which would be obtained with the ordinary squirrel cage motor and a compensator connected to the 80 per cent tap. It is possible to design such motors for even lower starting current at a sacrifice of other characteristics, but, inasmuch as the values shown are usually satisfactory for most power systems, motor manufacturers do not make a further reduction in starting current of the standard high reactance motors, preferring to keep the other characteristics as high as possible.

The torque speed curves of these motors give an indication of the field of application for each of the various designs. The curve of the ordinary squirrel cage motor needs no particular comment. The high resistance rotor machine exerts approximately its maximum torque at starting and is, therefore, suitable for loads requiring high starting torque. However, it will be noted that its slip at full load is some

three times greater than that of the other squirrel cage motors. This limits its field of application to applications involving frequent starting and very short running periods or to loads having flywheels and rapidly recurring peak loads. For these applications the high resistance high slip motor is ideal as it permits the flywheel to deliver some of its stored energy to help carry the machine through the peak loads. The high torque high reactance motor is particularly applicable to those loads requiring high initial torque, but ordinary squirrel cage characteristics at full speed. Examples of such applications are conveyors which run for long periods and small compressors started without unloading.

The high reactance motor, indicated as the normal torque design, obviously can be applied wherever the ordinary squirrel cage motor has been applied inasmuch as their initial starting torques are about the same and its maximum torque is at least 200 per cent, which is generally considered sufficiently high for practically all general purpose applications. It might be mentioned that the initial starting torque of this design can be varied considerably in designing a motor of this design can be varied considerably in designing a motor to closely fit the torque requirements of a particular driven machine. However, a design, giving the torque curve shown here, seems to be quite widely acceptable for general purpose work.

The development of these high reactance motors has increased the field for full voltage starting in three ways. First, the small power consumers have seized upon the combination of high reactance motor and magnetic switch as a means of meeting the power-company-current-rules and yet obtaining full automatic operation with low cost and utmost simplicity. In the second place, high reactance motors can be designed with torque curves to exactly fit the driven machine, eliminating the question of excess starting or maximum torque, and, therefore, also eliminating the necessity of a current and torque reducing starter. Third, the "high torque high reactance" motors are being applied to loads where, heretofore, only wound rotor or slip ring motors have been used.

Full voltage starting obviously involves taking more power from the line, but for a shorter time and, therefore, the actual energy consumed is less than with other methods. Where there are several motors in an installation, the practice of full voltage starting will rarely bring the Kw. demand of the starting period above that of the running period as, in a large installation, the motors are not all started at the same time.

Now since there are available these various kinds of squirrel cage motors designed to more nearly meet the torque requirements of the driven machines and yet satisfy the demands of power companies as to starting current in sizes up to about 30 h.p., there appears to be no reason why full voltage starting will not become quite generally the practice, at least up to 30 h.p.

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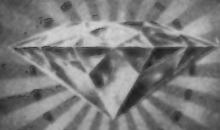
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**The Resistance Method of Starting.**

The method of starting squirrel cage motors by inserting series resistance which is short-circuited as the motor reaches full speed, is of course, very old, being a method borrowed from direct-current-motor starting practice.

While it has been with us as long as the compensator, the use of the resistor starter has been confined largely to very small motors. This is not surprising when its relative effectiveness is considered. It reduces the line current in proportion to the reduction in voltage at the motor terminals — 65 per cent voltage at the motor means 65 per cent of the locked rotor current of the motor drawn from the line. Started by a compensator giving 65 per cent voltage at the motor means 65 per cent of the locked rotor current of the motor drawn from the line. Started by a compensator giving 65 per cent voltage to the motor, the line current drops to about 42 per cent of locked rotor current. With a motor, say of 50 h.p.—220 volts, this difference might easily amount to as much as 200 amperes, which is approximately twice the normal full load current of the motor.

While the reactive component of the starting current may be a few per cent higher with a compensator, the total current taken when using a resistor starter is so much higher (for the same torque) it cannot help but have a more harmful effect on the feeder voltage.

The resistor starter in addition to drawing more power from the line than a compensator is a consumer of energy on a fairly large scale and this energy must be dissipated by the starter.

In the case of this motor, which is typical for most any size of ordinary squirrel cage motor, the watt rate of loss for the resistor was some fifteen times that of the compensator. This means that the compensator must start the motor fifteen times to consume the amount of energy taken by the resistor at one start, or the compensator must start the motor four times to equal the loss of the reactor for one start. The saving in energy by one method over the other is not of particular importance, unless very frequent starting is involved. But rather it is the effect of this difference in the design of a starter which, to be generally applicable, must be enclosed for safety reasons and compact and easy to install.

To meet the test recognized by the Underwriters, the manufacturers of starters, the Institute, and the A. E. S. C., as a proper and not too stringent one for a general purpose starter (namely, three times full load current for fifteen seconds out of each four minutes for one hour, without reaching a prescribed temperature, the resistor starter would need to have about fifteen times the radiating area of the compensator, or else fifteen times the temperature for the same area, or some compromise between these values.

A close study of such facts and other test data indicate that a resistor starter can be designed for small motors where the total watts

to be dissipated in the starter can be dissipated within the enclosure without materially raising the contacts and other parts of the starter to an undesirable temperature. With larger low voltage motors the amount of energy to be handled becomes greater and difficulties with heating are multiplied.

There is the feature of simplicity to be considered. A resistor can be short-circuited and this simplifies somewhat the switching problem in the design of the starter. Furthermore, it is an easy matter to repair or to replace a resistance unit. Therefore, where space is not at a premium, where these features of simplicity are worth more than reduction in starting current and where only a slightly reduced torque is desired, the resistor starter should find a ready application.

For the network systems which have been mentioned before, where the voltage dip must not exceed two volts because of the possible effect on lighting, the "multi-step" resistor-starter has a field of application as it can be designed to permit building up of the initial starting current in small increments which will not affect the system voltage beyond the two volt limit. In such a starter the heating problem is still present, but, inasmuch as the series resistor lends itself to multi-step starting better than other methods, because parts of the resistor can be shorted out at intervals without complicated switching, it is used for such starters. Obviously, however, a multi-step starter of this sort will be more complicated and of smaller capacity than is desirable for general industrial application.

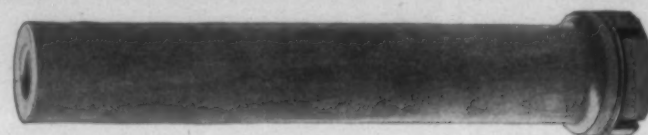
**The Reactor Method.**

The reactor method of starting is subject to the same remarks as applied to the resistor method. For a given torque the current reduction effected is small, and, since there is a large reactive component, with pure reactance in the circuit, the line disturbance may be considerable. Furthermore, judging from the data just mentioned for a 25 h.p.—440 volt motor, the heating may easily be four times that of a compensator.

The fact that it is hardly possible to bring out taps and short circuit parts of a reactor at intervals during the starting period limits this method to one-step starting.

It might be mentioned in closing that the reactor starter may sometimes prove advantageous in starting large synchronous motors by reason of the fact that it permits the voltage at the motor to rise as higher speed is attained and this gives the motor additional torque just when it needs it to pull into synchronism. Switching is simplified and, with air core reactors, heating is not a serious problem.

To summarize the situation of methods of starting squirrel cage induction motors and synchronous motors as it appears today, the trend seems to be toward a more general use of full voltage starting of motors up to 30 h.p. and probably on up to 50 h.p., through a proper utilization of high reactance squirrel cage motors having low or normal starting torque and low starting current.

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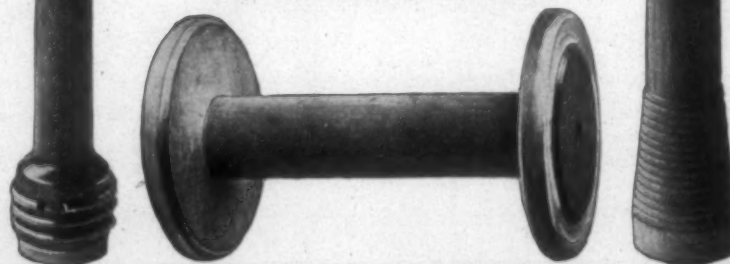
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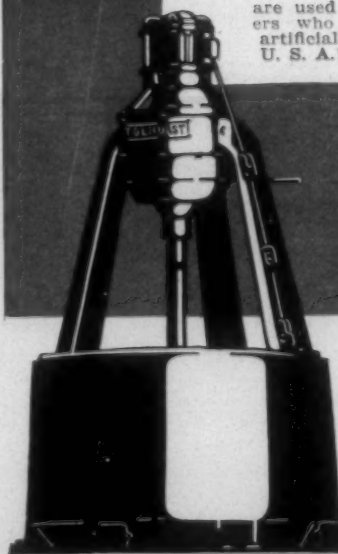


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## Cotton Goods

New York. — The cotton goods markets showed some improvement during the week. Sales of both unfinished and finished goods were larger and were about equal to the present output. Print cloths and sheetings were more active. Most of the sales called for delivery within the next six weeks, although some contracts ran much further ahead.

There was a larger business in rayon draperies. Flannels and blankets for fall trade were in better demand. Business in printed rayon specialties was better and larger sales of bedspreads and towelings were reported.

Tickings and denims were generally quiet and ginghams sold only in moderate quantities. Tire fabrics continued active and mills on these goods generally have more business than those on most other lines. Sales of sheets and pillow cases were steadier.

Prices showed the cotton goods markets have been growing firmer in spots. Print cloths were  $\frac{1}{8}$ c higher than a week ago, some quotations on cotton duck having been advanced, and instances are reported where buyers are willing to pay advances to secure additional early deliveries of some of the most wanted styles of fine printed goods. The handlers of several lines of sheets and pillow cases were anxious to quote some of the very low prices heard of a short time ago.

In the print cloth section there was trading on 64x60s spots and nearby at 7 $\frac{1}{2}$ c. Buyers took a few spots of 60x48s at 6 9-16c and some also sold at 6 $\frac{1}{2}$ c. For the 68x72s 8 $\frac{1}{2}$ c was paid, most mills holding them firm at 8 $\frac{1}{2}$ c, though there was a rumor of some offered, possibly second hand, at 8 $\frac{1}{2}$ c. The 80 squares were pegged at 10 $\frac{1}{2}$ c for any month, with few of them taken, buyers trying to cover on as late as April at 10 $\frac{1}{2}$ c. Sales of 27-inch 64x60s were made at 5 $\frac{1}{2}$ c; 28-inch 5 $\frac{1}{2}$ c; 7.15-yard, 6 $\frac{1}{2}$ c for later; 25-inch 11-yard, 4c, and 32-inch 6.50 yard, 6 $\frac{1}{2}$ c.

Prices on sheetings were practically unchanged for the week, and were at about the same levels as the week previous. For 31-inch, 5.00 yard, 6 $\frac{1}{2}$  net was the market; 37-inch, 48 squares, 4.00 yard at 7 $\frac{1}{2}$  net; 37-inch, 3.50 yard at 3 net; 4.70 yard at 7 $\frac{1}{2}$  net; 36-inch, 5.00 yard at 7 net; 36-inch, 56 squares, 4.25 yard at 8 $\frac{1}{2}$  net; 40-inch, 4.25 yard at 7 $\frac{1}{2}$  net; 40-inch, 2.85 yard selling at 11 net, and some of the choice goods have brought one-quarter higher, for small lots, during the week. For tinged goods, 10 $\frac{1}{2}$  has been paid for March-April; 40-inch, 2.50 yard sold at 12 $\frac{1}{2}$  net; 40-inch, 3.60 yard at 10 net.

Fine goods business was generally described as continuing scattered and spotty, but with the aggregate total still showing an improvement over the recent experience. There were centers that found the general situation quiet, while others were working on inquiries for a variety

of goods. Combed marquisetts were the subject of quite some inquiry for deliveries commencing six to eight weeks. There was interest reported in one or two centers specializing in brassiere cloths.

Wash goods reports continued to be encouraging. However, some of the converters say that, while their volume is better, the subject of price is still a difficult one, because of the competition which they must meet. Printed dimities are mentioned frequently in the business that is being done, with some reporting printed batistes as running pretty close second. A few houses have found the batistes running ahead of the dimities. Some find fair sales of the plain color broadcloths, and others state that the printed broadcloths are improving sale, with a steady inquiry.

While some centers have been reporting improvement in the demand for certain classes of fine and fancy goods since a week ago, it does not appear to be betterment of the broad and decisive sort. Despite the knowledge that a number remain fairly well covered, there are said to be indications that some are delaying purchases that they ought to be making now for late spring and summer finished goods business. Prediction continue to be made by several keen market observers that sooner or later there will be something like a scramble for spots of certain classes of goods.

The moderate trading of last week in the Fall River print cloth market came to a rather abrupt end with the beginning of the week. The result was a sharp decline in the volume of business put through and the aggregate sales will reach approximately 50,000 pieces against 80,000 for the week previous. Mills continue firm in their asking prices, despite the lack of interest. Scattered trading predominated with some efforts noted to place business under the asking. There was volume to the offerings.

No reason is apparent for the slackening up other than buyers have evidently filled their immediate wants and are satisfied to bide their time before committing themselves further. The tobacco and surgical houses contributed the bulk of last weeks business and their absence this week has been quite noticeable.

Cotton goods prices were as follows:

Print cloths, 28-in., 64x64s.	5 $\frac{1}{2}$
Print cloths, 28-in., 64x60s.	5 $\frac{1}{2}$
Print cloths, 27-in., 64x60s.	5 $\frac{1}{2}$
Gray g'ds, 38 $\frac{1}{2}$ -in., 64x64s.	8 $\frac{1}{2}$
Gray goods, 39-in., 68x72s.	8 $\frac{1}{2}$
Gray goods, 39-in., 80x80s.	10 $\frac{1}{2}$
Dress ginghams	16 $\frac{1}{2}$ a 18 $\frac{1}{2}$
Brown sheetings, 4-yd., 56x 60s	10
Brown sheetings, stand.	12 $\frac{1}{2}$
Tickings, 8-oz.	22 $\frac{1}{2}$ a 24
Denims	18
Staple ginghams, 27-in.	10 $\frac{1}{2}$
Kid finished cambrics	8 $\frac{1}{4}$ a 9 $\frac{1}{2}$
Standard prints	8 $\frac{1}{2}$



# The Yarn Market

Philadelphia, Pa.—The yarn market showed some improvement last week, but slowed up again at the close. The stronger cotton markets were a factor in making higher prices and these have been maintained by spinners in spite of the fact that sales continued on a limited basis. Inquiry was more active and day to day sales were more frequent than they were during the several preceding weeks. Buyers appeared more seriously interested in their requirements and there were many indications that many of them are considering large orders.

Consumers have constantly resisted higher prices, but spinners held firm and appeared intent on preventing any declines in quotations. There were some reports of concessions on spot sales made by dealers on Friday and Saturday, but these were said to account for a very small volume of yarns. Stocks being held by dealers are reported as being too light to have much effect. Spinners assert that price margins are as small as they can go and in most cases prices are below replacement values. They believe that the low point in yarn values has been reached.

The best demand during the week was for carded knitting yarn. There was some buying by the weaving trades, but usually in very small quantities.

Combed yarns were no firmer than they were a week ago, and it will require a marked increase in demand to place this part of the market in as firm a price position as the carded division. This is due in part to the fact that prices of extra staple cotton remain relatively weaker than those of shorter cottons, but more to the fact that stock accumulations of combed yarns are relatively much larger than those of carded yarns. Special descriptions for forward delivery are distinctly firmer in price and in this there is an intimation that it would require only a short period of active buying to place the greater part of the combed yarn division of the market on a firmer price basis.

8s	Southern Two-ply Chain Warps	31
10s		31 1/2
12s		32 1/2
14s		34
16s		36
20s		39
24s		40
26s		41 1/2
30s		50
40s		54
50s	ex.	64
8s	Southern Two-ply Skeins.	31
10s		31 1/2
12s		32
14s		33
16s		34
20s		36
24s		39
30s		41 1/2
36s		48
40s		50

40s	ex.	54
50s		63
60s		73
8s		32
10s		33
12s		34
16s		35
20s		37
10s	Southern Single Chain Warps.	31 1/2
12s		32 1/2
14s		33 1/2
16s		34
20s		36
24s		38
26s		39
30s		42
40s		50
6s	Southern Single Skeins.	31
8s		31
10s		31 1/2
12s		32
14s		33
16s		34
20s		35 1/2
22s		36
24s		38
26s		40
30s		41 1/2
8s	Southern Frame Cones.	31
10s		31 1/2
12s		32
14s		32 1/2
16s		33
20s		34 1/2
24s		35
26s		36
28s		37
30s		37 1/2
30s		39 1/2
40s		52 1/2
16s	Southern Combed Peeler Skeins, etc.—Two-ply	48
20s		50
30s		58
36s		63
40s		69
50s		74
60s		82
70s		95
80s		1.05
10s	Southern Combed Peeler Cones.	41
12s		42
14s		43
16s		44
20s		46
22s		46
24s		49
26s		51
28s		53
32s		55
34s		56
36s		59
38s		61
40s		62
50s		73
60s		82
70s		95
20s	Eastern Carded Peeler Thread-twist Skeins—Two-ply.	47
22s		48
24s		49
30s		53
36s		59
40s		69
45s		80
50s		82

## Wanted

Hosiery knitting machine fixers for Southern plants; salaries \$35 to \$50 per week. Charles P. Raymond Textile Service, 294 Washington St., Boston, Mass.

## Position Wanted

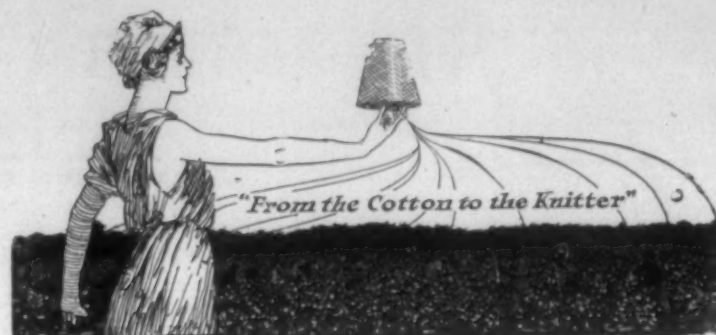
I have had 28 years' experience in carding, spinning and machine shop. 10 years as overseer. Would like to hear from any mill in need of a man for either department. Address F. V. A., care Southern Textile Bulletin.

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We are in the market for Automatic Underwear Terry Towel Looms, 2x1, and 4x1, 37½" to 52". 4 cell magazine, with and without dobbies. Looms must be in A-1 condition. Address Dominion Fabrics, Ltd., Dunnville, Ontario, Canada.

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Duck Ply Yarns, waste and seconds, any sizes. Please submit samples and quote prices delivered. Little Rock Textile Co., Little Rock, Ark.

### Wanted to Buy

Drop ply yarns, waste yarns and seconds, any size. Please submit samples and quote price delivered. Little Rock Textile Co., Little Rock, Ark.

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